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Inside Dope

By GEORGE
F. TAUBENECK



Learn to live and laugh —
thus delay your epitaph

Stories of the Week
Everybody Loves a
Collector
Etaoin Shrdlu

Stories of the Week

Young fella wanted to get ahead in the world—fast. He was first in the office every morning, last to leave at night, lunched on sandwiches at his desk, carried a briefcase, was ultra-polite and willing. . . .

"Sam, I've been watching you carefully," his boss finally said. "What the hell are you up to, anyway?"

Advertising manager's small son picked at his lunch pickily.

"Young man, you settle down and eat!" commanded his mother.

"Motivate me," wised the lad.

Ad man's daughter knew all the radio commercials by heart. Upon seeing an armless sculpture of Venus de Milo, the little girl clucked:

"My! She must have used a harmful detergent when washing the dishes."

At a Rhode Island convention of the Typographers Union, a banner behind the speaker's table bore the union's official name.

With poetic justice, perhaps, the "h" had been omitted.

Everybody Loves a
Collector

"If you want to find out how helpful people can be," the late George Mason once told us, "let it be known that you are collecting something—anything."

Our first experience of that truism was a one-paragraph mention in this column to the effect that our then-small son (you should see him now!) was collecting picture postcards from various cities.

Response from readers? An avalanche. Within six weeks subscribers sent in more than 2,000 souvenir postcards, and within six months he had received nearly 5,000 cards from 46 states and 17 foreign countries. Many of the traveling men in our industry made it a habit to stop at every hotel cigar stand, clean out the postcards, and mail them to Greg.

Five years have passed, and our tall teen-ager now is more interested in collecting girls than postcards. Yet, almost every week Greg still receives two or three cards from thoughtful, kind, and generous readers.

People can be wonderful!

(Concluded on Page 12, Col. 1)

Mitchell Bows Portable Room Conditioner

CHICAGO—Mitchell Mfg. Co. has introduced to its distributors a 59-lb. "True Portable" room air conditioner as a preview model in its 1958 room air conditioner line, it was announced recently by J. W. Alsdorf, Mitchell president.

The 7½-amp Mitchell portable measures 16 in. wide, 15 in. deep, and 12 in. high—smaller than the average portable TV set. It has a built-in carrying handle.

Thirty per cent lighter, and the smallest room air conditioner on the market, the 59-lb. Mitchell True Portable is also said to be the most compact room air conditioner ever offered.

"Compact size, built-in carrying handle, and a realistically manageable weight means that the Mitchell True Portable can be easily moved from room to room."

(Concluded on Page 4, Col. 5)

Seeger To Make Sears Line of Comfort Cooling

CHICAGO—Sears Roebuck & Co. is liquidating the Mira-Cold Corp., subsidiary company here which manufactured the Sears air conditioner line. The firm's comfort cooling line will be manufactured by the Seeger Div. of Whirlpool-Seeger Corp.

Manufacturing operations at the Mira-Cold plant on Spalding Ave. here were closed down Aug. 16, and Sears officials announced that the property and physical assets of the subsidiary would be liquidated at a public sale to be held at some future date.

The air conditioner line will probably be manufactured at the Seeger Div. plant in Evansville, Ind., it is believed.

Mira-Cold Corp. was formed at the end of last year when Sears purchased the air conditioner manufacturing facilities of Birtman Electric Co., which had been manufacturing part of the Sears line.

(Concluded on Back Page, Col. 1)

Servel Sells Gas Cooling Div. To Arkansas Louisiana Gas Co.

Directors Seek Sale of Home Appliance Div.

EVANSVILLE, Ind. — Arkansas Louisiana Gas Co., apparent new owner of Servel, Inc.'s All-Year Gas Air Conditioning Div., will continue operation of the plant here and will enter into the promotion and marketing of Servel all-year air conditioning equipment, a spokesman for the utility declared recently.

"No plan has yet been announced," he declared, "but I believe I can say it is the intention of the management to promote marketing of Servel products through the gas utilities."

Arkansas Louisiana Gas Co. announced on Aug. 8 that it had purchased the All-Year Gas Air

Conditioning Div. of Servel, Inc. for \$4 million, subject to the approval of Servel stockholders.

Servel stockholders will meet in Dover, Del. on Sept. 11 to vote on the transaction. They will also be asked to give the company directors authority to sell the remainder of Servel's assets when a sale can be arranged which the directors consider advantageous.

According to a proxy statement sent to stockholders, the company has had exploratory discussions with several possible purchasers of the Home Appliance Div., but no understandings have been reached.

Servel's remaining property, which is used principally for the company's Home Appliance Div. and its general offices, includes

(Concluded on Page 29, Col. 1)

Gibson Refrigerator Sales Set Record

GREENVILLE, Mich. — Sales of Gibson refrigerators in July smashed all company records for the past five years, W. C. Conley, vice president in charge of Gibson sales of the Hupp Corp. division, reported here recently.

"In the face of directly opposite industry trends," said Conley, "our refrigerator shipments last month represented not only the best July in Gibson's history, but also the highest month in the past five years."

July shipments amounted to 241% of those in June and 310% of those in July, 1956, he said. The previous monthly record was established in June, 1952, during the Korean War buying spree.

Gearing of merchandising program

(Concluded on Back Page, Col. 5)

Bargaining Begun, See So. Calif. Sheet Metal Strike End

LOS ANGELES — Employers and the union involved in the strike affecting the sheet metal and air conditioning industries in southern California were meeting in bargaining sessions with a Federal mediator late this past week, and it was predicted that the end of the strike was in sight.

The strike was in its seventh week. Three unions in Los Angeles, Orange, San Bernardino, and Riverside counties "pulled the pin" July 1 when their contracts expired.

Employers had noted that their erstwhile journeymen employees were not being informed of association offers. So a recent meeting provided for notices to union members setting forth the offer which had been made during negotiations. Employers offered a substantial

Are Your Ears Burning?

"What do I expect refrigeration equipment to do? Refrigerate. Is that too much?" asks Abe Miller, San Francisco supermarket operator. But, he says, 90% of the mechanical trouble in his stores is from refrigeration.

Miller presents the supermarket operator's view of the refrigeration contractor and serviceman in the

Commercial Refrigeration Section

. . . Next Week.

Nelson Sells 4 Branch Offices

ST. LOUIS — While denying the company is in the process of being liquidated, Glenn O. Seydel, president of N. O. Nelson Co., last week sold four of its Texas branch offices to Economy Supply Co. of Fort Worth and is putting its general offices and local branch office up for sale.

Seydel, who heads a group

(Concluded on Back Page, Col. 1)

Weather Bureau Says

South To Get Above Normal Temperatures

WASHINGTON, D. C. — Above-normal temperatures for the southern half of the nation from the Rocky Mountains to the Atlantic Coast during the period from mid-August to mid-September are predicted in the 30-day forecast of the U. S. Weather Bureau.

Average temperatures are expected in the middle Atlantic, Plains states, and the Southwest.

Below average temperatures are expected for the Pacific Northwest, upper Great Lakes area, and northern New England.

BEHIND PAGE ONE . . .

Selling Better Health

Return to Health and Comfort Approach to Room Unit Sales Seen as Answer to Price Cutting 7

Electronic 'Brain' Air Conditioning

System Must Be Custom Designed To Meet Individual Requirements. . . . 10

Sharp Freezing Pizza

Restaurateur Keeps Customers Who Can't Get Table By Offering Them Carry-Out Service. . . . 13

Cooling Systems with Wet Heating Systems

Four Examples Show Possibilities for Rapidly Growing Market. . . . 16

How Latent Heat Defrosts

'L' Thermobank 22

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Estimating Correct Head Pressure. 25

Refrigerator Safety Device Standard

26

Servicing Auto Air Conditioners

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So. Calif. RACCA

Standard Refrigeration Maintenance Service Contract Agreement Adopted

LOS ANGELES—A standard maintenance agreement for use by all member contractors doing service contract work has been adopted by the Refrigeration & Air Conditioning Contractors Association of Southern California.

The contractors expect that the conditions and principles of this agreement will become a part of the practices of the industry, it was indicated.

More than 3,000 copies of the new agreement have already been ordered by members, according to Henry B. Ely, executive secretary.

As more and more of the new agreements go into effect, competition between contractors will become primarily service, and

not contract "gimmicks," Ely said.

Bearing the insignia of RACCA, the forms are headed with this declaration: "Approved: Refrigeration & Air Conditioning Contractors Association of Southern California, Inc."

The agreement is divided into three main parts. Part A sets forth what the contractor agrees to do. Part B is set up to indicate the optional services that the purchaser may take if he wishes. Part C makes very plain matters that the contractor is not undertaking in his relations with the purchaser. This last part is of great importance in eliminating misunderstandings

(Concluded on Page 29, Col. 2)

Make Your **FIRST CHOICE**

READING COPPER TUBING

Made by
Copper Tube SPECIALISTS



SECOND to NONE

for Refrigeration &
Air Conditioning Equipment

READING TUBE CORPORATION

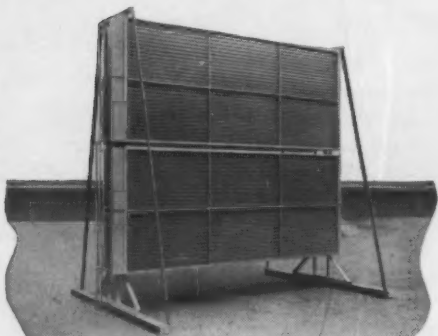
EMPIRE STATE BUILDING NEW YORK 1, N. Y.
WORKS: READING, PA.

**KRAMER
UNICON**

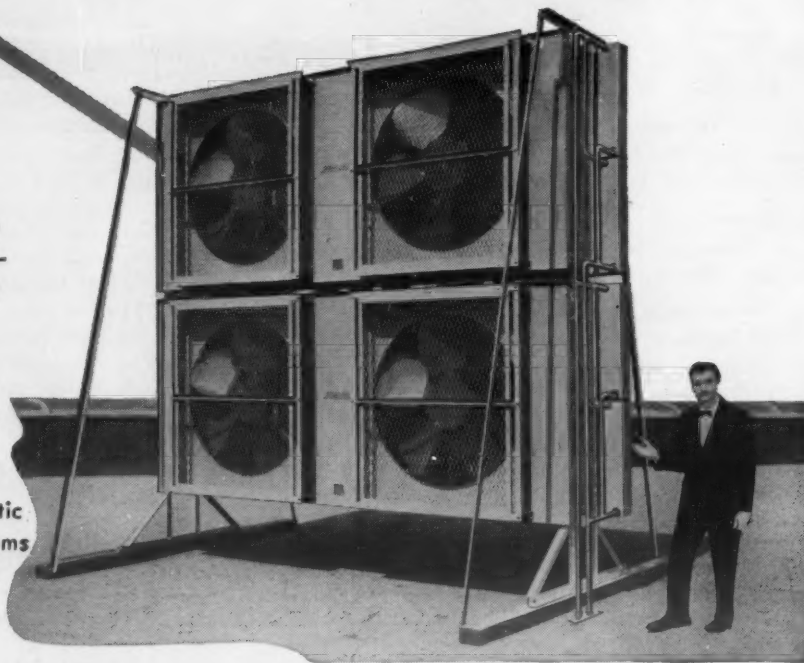
GETS BIGGER and

BIGGER

There is only one answer to large capacity condenser problems — the KRAMER UNICON. Every day more engineers plan larger tonnage installations — 50, 100 and even — 800 tons. And every day UNICONS are shipped to all parts of the world for giant-sized installations. No other air-cooled condenser can match the long, successful record of UNICON, backed by thousands of applications since 1937 — in the widest range of tonnages and climatic conditions. Your condensing problems can be best answered by use of the best — the KRAMER UNICON.



Space-saver UNICON, as illustrated, serves a 60-Ton air conditioning system, yet takes but 70 sq. ft. of roof space.



UNICON is a remote-type air-cooled condenser that requires no water. KRAMER UNICON can be used with any size compressor, REGARDLESS of horsepower. Any size refrigeration or air conditioning system can be air-cooled with UNICON, REGARDLESS of tonnage. UNICON requires less horsepower, less piping, is easier to install and costs less. KRAMER UNICON performs best — even in semi-tropical climates.

WRITE FOR BULLETIN U-210D

KRAMER TRENTON CO. • Trenton 5, N.J.

Admiral To Improve Appearance of Ads, Use Print Media, Push Sales to Dealers

CHICAGO — There are three "switches" in Admiral Corp.'s new advertising campaign, now getting under way.

One switch will be based on the assumption that a durable consumer goods product of the type merchandised by Admiral must be sold twice—to the dealer handling it, as well as to the consumer who finally purchases it for his own use. Thus, copy will be slanted to "sell" Admiral features to the dealer as well as the consumer.

"We have to convince the salesman of the value of the product, too, and give him good selling points to pass on to the consumer," an official said.

Second switch will be emphasis on "appearance" of the printed advertising, designed to

improve the "product image." Fashionable settings and pretty models will be used, and even the logo will be changed.

Third switch will be the almost complete emphasis on print media in the advertising budget planned by Henri, Hurst & McDonald, advertising agency handling the account. Almost all of the budget thus far has been earmarked for newspaper, magazine, and trade publication advertising, with local co-op advertising taking care of spot TV commercials.

But Admiral has dropped its participation on the "Today" and "Tonight" TV shows and thus far has not indicated that it will sponsor a network show.

As reported in the Aug. 12 issue of AIR CONDITIONING & REFRIGERATION NEWS, Admiral reported close to "sellout" success in the first year of manufacturing its own room air conditioners, and plans to add a 4-hp. unit to the 2-hp. residential air conditioner marketed in '57.

First Tecumseh Golf Day Commemorates F.K. Smith

TECUMSEH, Mich. — First Frank K. Smith Memorial Golf Day, which will be an annual invitational event commemorating the memory of the late executive vice president of Tecumseh Products Co., was held Aug. 10 at Tecumseh Country Club here.

A plaque mounted on a stone taken from the grounds of his home was unveiled on the Country Club grounds by his widow, Edith, and his children, Jane and Kirk Smith.

Philco To Sponsor 1957 Miss America Telecast

PHILADELPHIA — Philco Corp. has announced that it will once again sponsor the telecast of the Miss America pageant at Atlantic City, N. J.

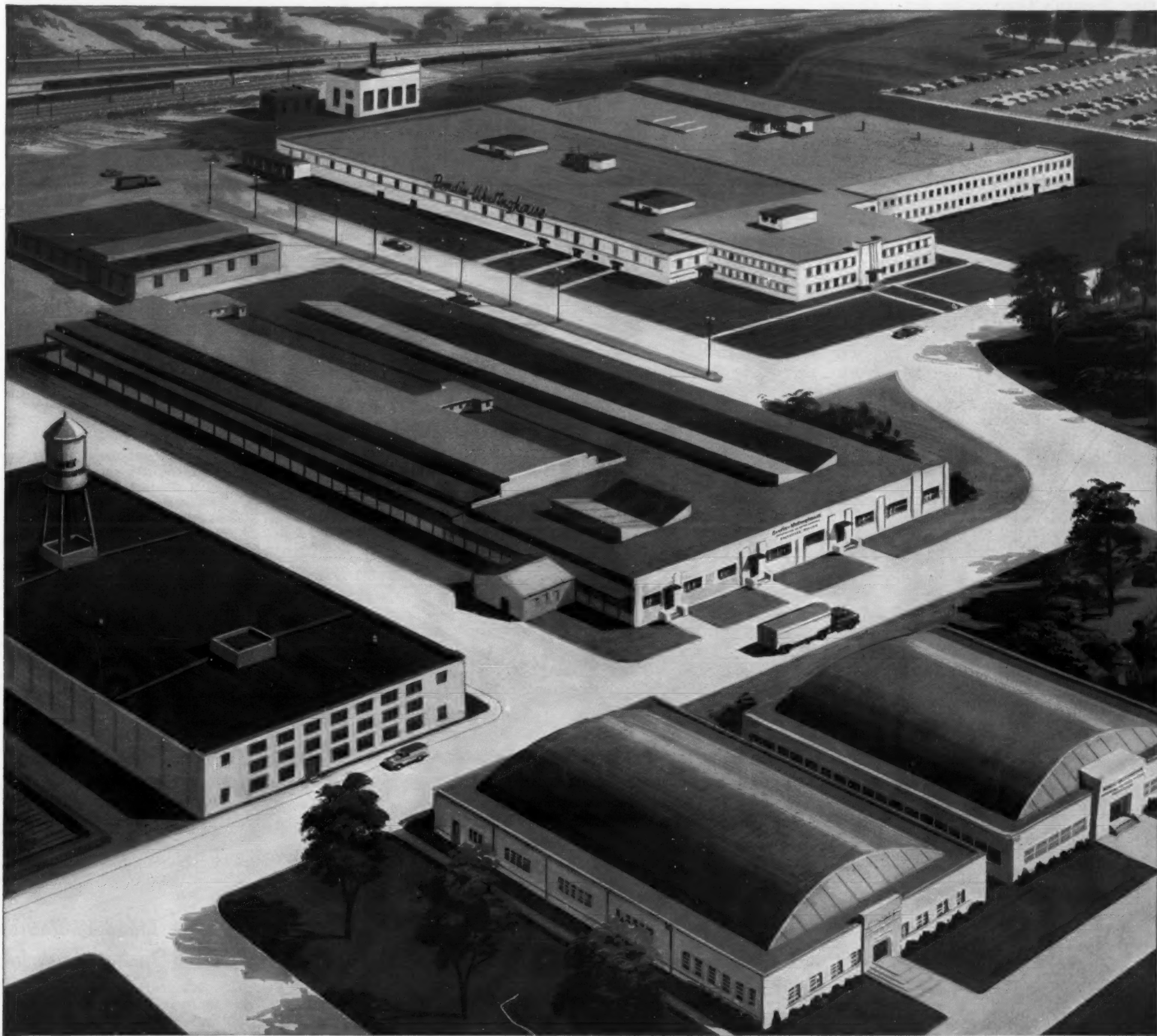
Philco will also conduct a "Guess Who Will Be Miss America" public contest, with more than 1,500 dealers throughout the country participating, from Aug. 19 to midnight, Sept. 6.

Dealers will feature in their windows pictures of all contestants in this year's Miss America Pageant. The public will be invited to guess Miss America, the first and second runners-up, and tell in 25 words why they would like to own a "Miss America" television receiver.

Each dealer will stage his own contest and will award five individual prizes: a Philco transistor radio, first prize, and four official "Miss America" dolls.

Philco, which first televised the pageant in 1954, will sponsor this year's show coast to coast over the CBS-TV network from 10:30 p.m. to midnight EDT, on Saturday, Sept. 7. More than 100 stations are expected to be in the hook-up.

For the first time, Philco said, exclusive coverage of each contestant will take place so the the folks at home can see their state representative.



Artist's conception of all Bendix-Westingshouse plants placed in one common grouping—a modern industrial community employing thousands of people and embodying nearly a million square feet of floor space.

THE HOUSES THAT DEPENDABLE COMPRESSORS BUILT!

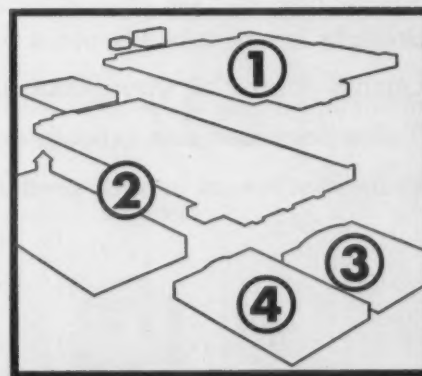
Over the past twenty-six years, Bendix-Westingshouse has built millions of compressors for the trucking industry. The same standards of quality that convinced those people our product was dependable are convincing refrigeration and air conditioning people that Bendix-Westingshouse refrigeration compressors possess a like dependability.

Here, at the Evansville Division, where our complete line of hermetics are built, we're practicing the same rigid quality control and manufacturing policies that have made our company

a lasting success in the automotive field.

We would like the chance to tell you in detail the many painstaking steps we employ to assure the built-in dependability of every Bendix-Westingshouse compressor. Also, we'd welcome the opportunity to quote prices and delivery on our compressor line ranging in capacities from $\frac{1}{4}$ to $7\frac{1}{2}$ H.P.

Write us for further information and a prompt visit from one of our regional managers. Evansville Division, Evansville 11, Indiana. Export Sales: BENDIX INTERNATIONAL, 205 E. 42nd Street, New York 17, New York.



- 1 Bendix-Westingshouse Automotive Air Brake Company, Elyria, Ohio
- 2 Bendix-Westingshouse, Evansville Division, Evansville, Indiana
- 3 Bendix-Westingshouse, Berkeley, California
- 4 Bendix-Westingshouse, Oklahoma City, Oklahoma

EVANSVILLE DIVISION of
Bendix-Westingshouse
 Automotive Air Brake Company

For more information about products advertised on this page use Information Center, page 18.

First Women's 'Congress on Better Living'

Thoughts on Air Conditioning, Appliances Expected at Confab

NEW YORK CITY—The first Congress on Better Living, sponsored by *McCall's* magazine, will be held in Washington, D. C., at the Shoreham hotel, it was announced recently.

Purpose of the congress, which will bring a representative cross-section of women from all over the country to Washington, is to bring out what American families really want, and need most in their homes today. This is expected to include their thoughts on air conditioning and appliances.

"The congress will provide basic research material for the multi-billion dollar home building and home furnishings fields as well as to American families

everywhere," a *McCall's* spokesman said.

Franklin Greene, executive director of the Better Heating-Cooling Council, representing five important building trade associations supporting the congress, is chairman of the executive council of Women's Housing Congress Inc.

In a recent news conference at the Savoy-Plaza hotel, Greene said, "We believe the first need of the American family is an adequate, well-built home."

Among the association members of WHC are the National Association of Plumbing Contractors and the Better Heating-Cooling Council, it was explained.

Laundry Group Agrees with Furniture Makers To Ease Off Jan.-June Marts

CHICAGO—Directors of the American Home Laundry Manufacturers' Association have endorsed a plan approved earlier by furniture manufacturers whereby the present January and June Chicago furniture and appliance markets would eventually be abolished in favor of a spring and fall market each year, B. J. Hank, president of AHLMA, disclosed.

Under the original proposal made by the National Association of Furniture Manufacturers, an orderly transition would be made away from four furniture shows a year. In 1958, they would consider having only three—January, April, and October. In 1959, they would pare it down to April and October.

AHLMA's board noted that

the January market is poorly timed with respect to new appliance model introductions. ALHMA favors emphasis being placed on a late fall market.

Board members strongly urged that this market be held as near to Nov. 1 as possible because this date immediately follows the introduction of new major household appliances.

'58 Brand Names Week Set for April 13-19

NEW YORK CITY — Brand Names Week-1958 will be observed April 13-19, it was announced by Thomas F. O'Neil, chairman of the board, RKO Teleradio Pictures, Inc. and chairman of the board of Brand Names Foundation, Inc.



Mitchell True Portable

Mitchell Bows--

(Concluded from Page 1, Col. 2)

room to meet the changing heat load requirements in a home," says Alsdorf.

The Mitchell True Portable installs in both regulation and casement windows.

One of the features of the Mitchell True Portable is the snap-in side panels for installation in windows without tools or special skill.

With the True Portable, Mitchell introduces an all-new "Powertron" compressor designed for this unit which is half the size of comparable compressors and permits compactness without sacrificing capacity.

"At the ARI 110-56 Test Condition, which is the basic test standard established by the air conditioning industry, the Mitchell True Portable will perform within 10% of the published figures reported by some manufacturers for their 1957 3/4-hp. units," claims Howard G. Haas, vice president in charge of sales.

E. M. Flannery Retires From Dunham-Bush, Inc.

WEST HARTFORD, Conn.—Retirement of Edward M. Flannery, vice president of Dunham-Bush, Inc., was



announced recently by Cecil Boling, president. Flannery joined Bush Mfg. Co. in 1919, and served in many capacities, having been made secretary in 1930 and vice president in 1942. Following the consolidation of Bush with C. A. Dunham Co. in 1956, he continued as vice president of the combined organization.

Long a prominent figure in the air conditioning and commercial refrigeration industry, Flannery has held several important posts in national industry organizations.

He served as secretary, later as vice president, and, in 1947-48, as president of the Refrigeration Equipment Manufacturers Association.

He is currently a member of the advisory board of directors of the Air-Conditioning & Refrigeration Institute, successor organization to REMA. He is also a past president of the Purchasing Agents Society of Hartford County.

For your REFRIGERATION, AIR CONDITIONING and HEATING UNIT NEEDS . . .



Specify Quality-Controlled PHELPS DODGE COPPER TUBE!

- All tempers and sizes for use in original equipment.
- Straight length tube tempered to meet your bending and expanding specifications.
- Quality-controlled throughout manufacture to assure finest tube properties.
- Tubes degreased and capped, or dehydrated and sealed, if required.
- Deliveries geared to your production requirements.

*First for Lasting Quality
from Mine to Market!*



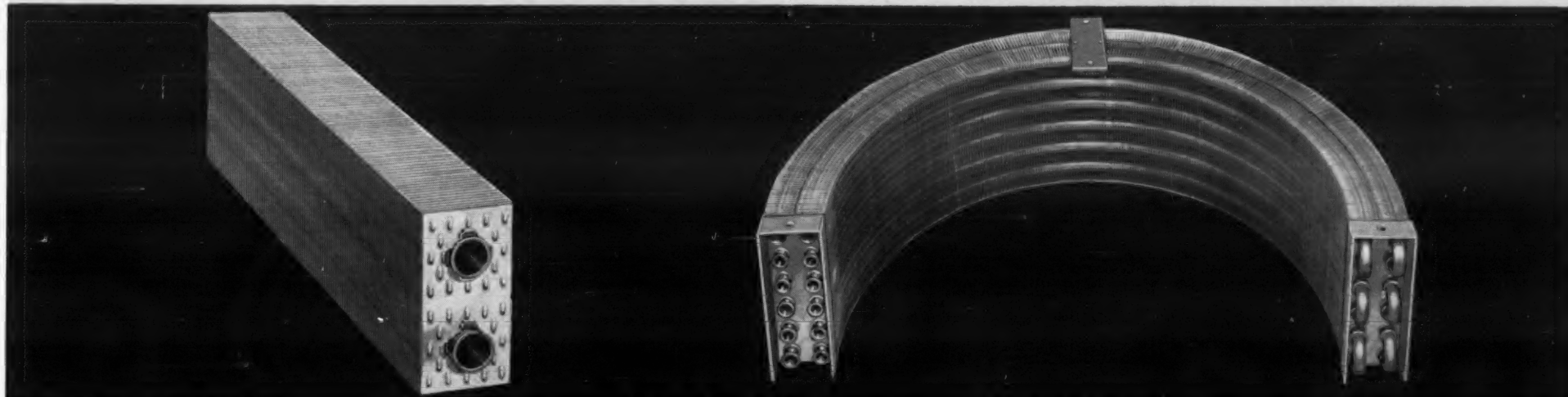
**PHELPS DODGE COPPER PRODUCTS
CORPORATION**

SALES OFFICES: Atlanta, Birmingham, Ala., Boston, Buffalo, Charlotte, Chicago, Cincinnati, Cleveland, Dallas, Detroit, Fort Wayne, Greensboro, N. C., Houston, Jacksonville, Kansas City, Mo., Los Angeles, Memphis, Milwaukee, Minneapolis, New Orleans, New York, Philadelphia, Pittsburgh, Portland, Ore., Richmond, Rochester, N. Y., San Francisco, St. Louis, Seattle, Washington, D. C.

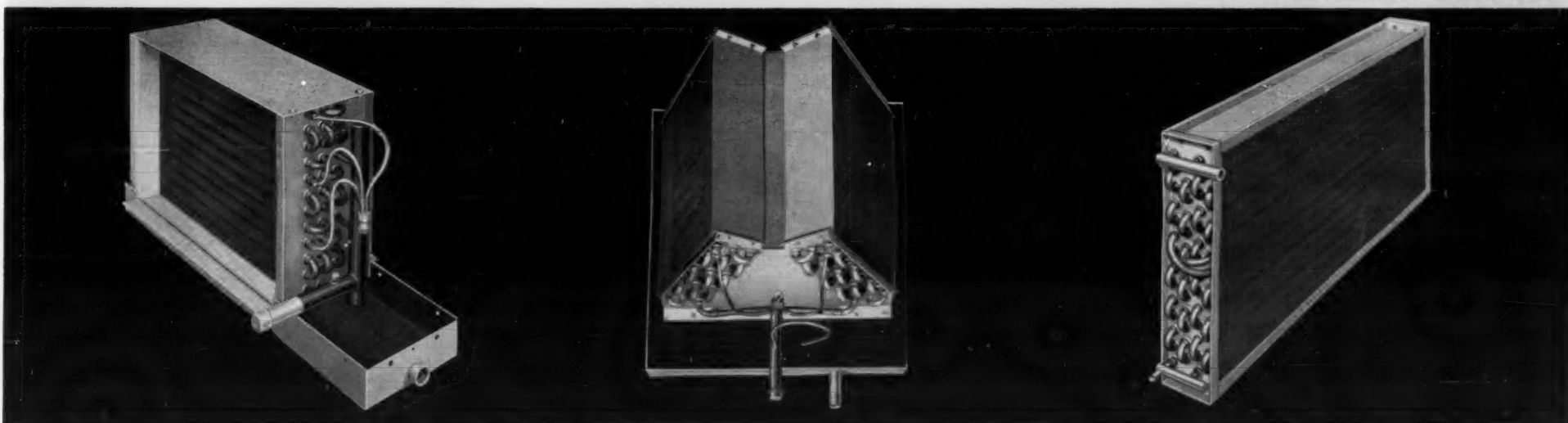
For more information about products advertised on this page use Information Center, page 18.

SO HALSTEAD & MITCHELL ENGINEERS ASKED . . .

PLANNING COIL PRODUCTION?



USE TURBU-FLO FINNED SURFACE

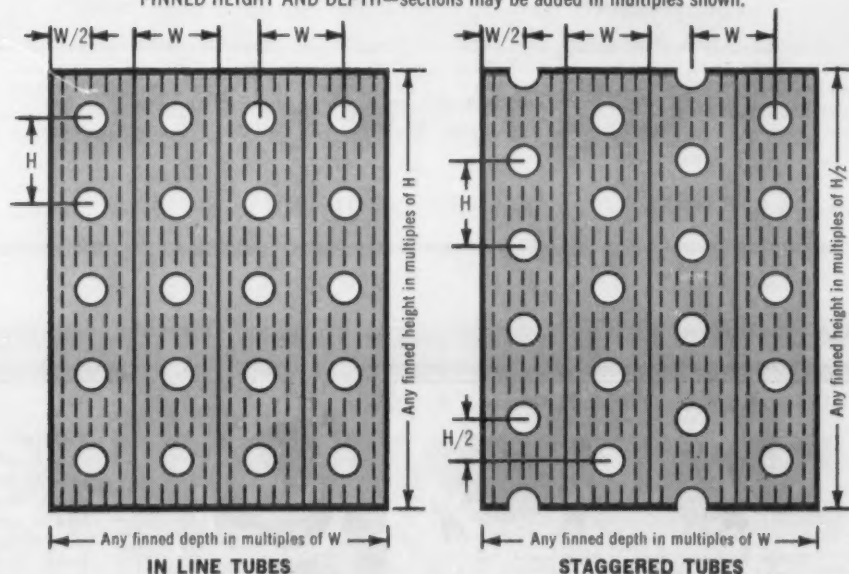


Now available to meet your requirements...

**ALL SIZES . . . FOR ALL SHAPES
LENGTHS UP TO 25 FEET**

TUBING				FINS		
SIZE O.D.	MATERIAL	SPACING center to center W x H	PATTERN	SPACING fins per inch	DESIGN	MATERIAL
5/8"	Copper	1 1/2" x 1 1/2"	In Line	5, 6, 7, 8, 9 or 10	Turbu-Flo	Aluminum
1/2"	Copper	1 1/4" x 1 1/4"	or	7, 8, 9, 10, 11, 12 or 13	Turbu-Flo	or
1/2"	Copper	1 1/16" x 1 1/4"	Staggered	7, 8, 9, 10, 11, 12 or 13	Turbu-Flo	Copper*

*With copper fins, fin spacing of 6 thru 13 per inch is available.
FINNED LENGTH may be obtained in lengths up to and including 25 feet.
FINNED HEIGHT AND DEPTH—sections may be added in multiples shown.



If your products involve heat transfer coils—for air conditioning, refrigeration, or heating—plan now on Halstead & Mitchell Turbu-Flo finned surface.

Either complete coils or bulk finned stock can be supplied to meet your requirements. Copper tubing with either aluminum or copper fins is available in basic specifications as shown. Halstead & Mitchell will fabricate coils for you of almost any size and shape, or supply finned stock in lengths up to 25 feet for assembly in your plant.

All H&M finned tubing features exclusive Turbu-Flo design. This streamline, embossed pattern will provide up to 15% more heat transfer for a given coil size.

Write today for complete information on prices and delivery. Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pa.



To Meet Aug. 21

Form Committee To Publicize Food Plan Freezer, Food Merchandising Method

ELIZABETHTOWN, Pa.—To draw up a proposed national public relations and advertising program for the food plan method of merchandising freezers and frozen foods, a committee of manufacturers and food plan operators will meet in Chicago on Aug. 21, Robert Madeira, executive director of the National Institute of Lock and Freezer Provisioners, has announced.

Expected to attend the meeting are Emil Stanton of Ben-Hur Mfg. Co.; Ray Graves of Whirlpool-Seeger Corp.; Ray Frederickson of Manitowoc Equipment Works; Ed Bailey of Philco Corp.; Tom Hagen, Kelvinator Div. of American Motors Corp.; J. Raymond Miller of Miller's Frozen Food Center, Bloomington, Ill.; Bob Locke of Town and Country Food Plan, Fort Wayne, Ind.; Putnam Lee of Leeway Distributor, Ardmore,

Pa.; Albert Todoroff, publisher of *Freezer Provisioning* magazine; and Madeira.

Results of the meeting will be reported at the institute's 18th annual convention at the Hotel Leamington, Minneapolis, Sept. 15-18.

Deepfreeze Plant Sold

CHICAGO — Craft Mfg. Co. here has purchased the former plant of Deepfreeze Appliance Div., Motor Products Corp., in North Chicago, according to Anthony Varese, Craft president. Purchase price was put at "about \$700,000."

Craft will use the 285,000-sq. ft. building to make bulk storage tanks.

41 Suppliers To Exhibit at Frozen Food Group Convention Sept. 15-18

ELIZABETHTOWN, Pa. — The eighteenth annual convention of locker and freezer provisioners will be held Sept. 15-18 at the Hotel Leamington in Minneapolis, the National Institute of Locker and Freezer Provisioners has announced.

This year's convention will feature a unique divided program, according to Robert Madeira, executive director of the institute. One will be for service-type locker operators and one for people who operate a freezer food supply and food plan-type plant.

Sessions for both these groups will be run simultaneously during the three-day meeting. These are in addition to general sessions and business meetings. Special sessions are scheduled

for mornings and general sessions for afternoons.

In connection with the convention, 41 suppliers will exhibit their wares in 70 exhibit booths. A large number of freezer manufacturing companies are included, according to Madeira.

First food plan session on Monday morning will cover fundamentals of food plan organization and food plan selling. Second session will be devoted to order assembly and deliver and customer credit and collection. Final session will concentrate on food plan follow-up.

Theme of the convention will be "Finding the Pot-of-Gold." During the course of the meeting, some conventioners will actually win a pot full of coins—

as many as he can carry over a specified course.

Featured speaker at the closing session will be William Gove, vice president of E.M.C. Recordings Corp. of St. Paul, Minn. Gove, who was selected salesman of the year in 1954 by the U. S. Chamber of Commerce, has titled his talk, "I'll Swap Ya."

U. S. Booklet Discusses Freezer Pros and Cons

WASHINGTON, D. C.—"Home Freezers—Their Selection and Use," is the title of U. S. Dept. of Agriculture Home and Garden Bulletin 48, available from the Superintendent of Documents, U. S. Government printing office, for 10 cents.

The 22-page booklet discusses pros and cons of upright and chest-type freezers; how to use them, and how they function.

110 Frozen Food Dealers Attend Amana's First 2-Day Prize 'Jamboree'

AMANA, Iowa — More than 110 food plan dealers from the United States and Canada attended a two-day "Jamboree" here, sponsored by Amana Refrigeration, Inc.

The Jamboree guests earned their trip on the basis of conformance to factory sponsored code of ethics, customer service, and sales performance, it was pointed out.

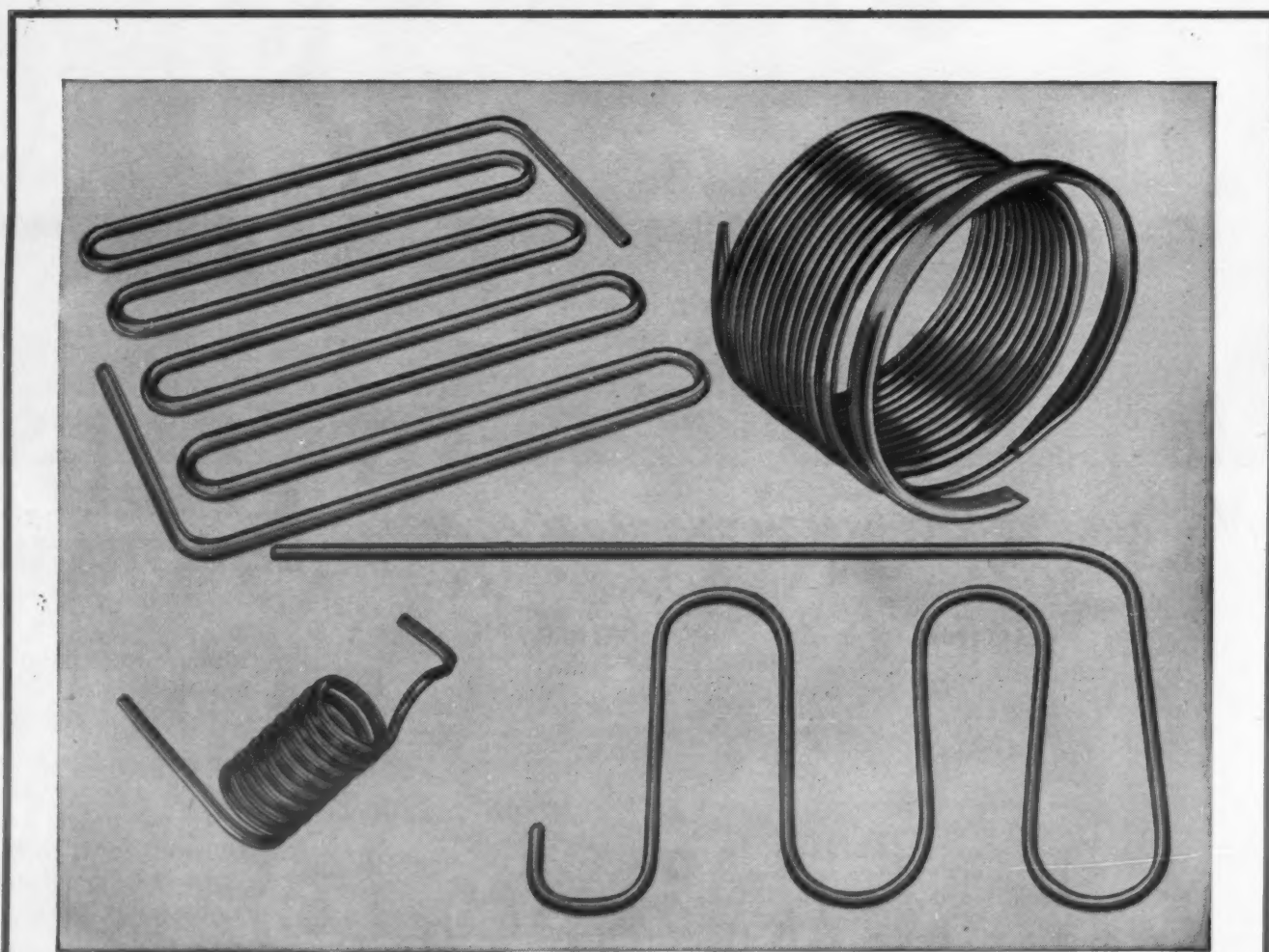
The first day's program included a breakfast meeting at the Roosevelt hotel in Cedar Rapids, Iowa, with short talks by W. J. Dickinson, director of key accounts; R. I. Pearce, director of freezer sales; and W. A. Wendler, assistant general manager, Amana Refrigeration.

The day's schedule included tours of the Amana Refrigeration plant and historic Amana Colonies, climaxed with an old-fashioned picnic complete with German band, tug of war, and pig lifting contest, at Amana, Iowa.

The next morning the group heard Amana speakers: George C. Foerstner, executive vice president; J. A. Rishel, Jr., general sales manager; and M. E. Morris, director of advertising. Also slated for Saturday were honor awards to nearly 40 dealers, and an open forum discussion of food plan merchandising by dealers attending.

It is hoped to make the Amana Jamboree an annual affair.

How Bundy holds down your costs . . . from serpentine coils



These serpentine coils and bends show some of the many ways Bundyweld Tubing can be used for refrigeration equipment.

PRESSTITE MASTIC SEALERS

- Seal seams
 - Deadend sound
 - Bulk, bead, tape or semi-liquid
 - Apply by hand, spray or flow
- See your wholesaler or WRITE

PRESSTITE-KEYSTONE
Engineering Products
COMPANY

3774 Chouteau Ave. St. Louis, Mo.

BUNDYWELD IS DOUBLE-WALLED FROM A SINGLE STRIP



Bundyweld starts as a single strip of copper-coated steel. Then it's . . .



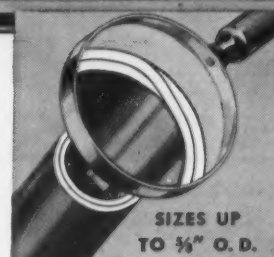
continuously rolled twice around laterally into a tube of uniform thickness, and



passed through a furnace. Copper coating fuses with steel. Result . . .



Bundyweld, double-walled and brazed through 360° of wall contact.



NOTE the exclusive Bundy-developed beveled edges, which afford a smoother joint, absence of bead, and less chance for any leakage.

SIZES UP TO 3/4" O.D.

Selling Better Health

Room Air Conditioner Dealers Advised To Return to Basic Approaches of Health, Comfort Instead of Low, Low Price

CHICAGO—The "health" appeal, although one of the most basic approaches, is still one of the best ways to upgrade room air conditioner prospects, according to Mitchell Mfg. Co.

It is so basic, in fact that many air conditioner-appliance dealers, in the rush to beat their competitors' low-low prices, seem to have temporarily forgotten about it, the company said.

Instead of talking price, dealers will be much farther ahead to sell the customer on some of the real benefits to himself and his family—better growth, better health, and better working conditions, a Mitchell sales official states.

Citing information compiled by the Mitchell Air Conditioning Research Foundation, sponsored by Mitchell Mfg. Co., he listed the following as basic facts which appliance dealers should use in upgrading their customers:

Cooling Aids Heart

(1) Better Health—The heart works seven-to-ten times as hard in 90° temperatures as in 70° temperature. Also the filtering action of a good air conditioner removes more than 90% of pollen, dust, and other foreign matter from the air, aiding those who suffer from hay fever and other allergies, as well as asthmatic attacks.

(2) Better Growth—Surveys among children show that just a few degrees difference in average temperature is sufficient to slow growth perceptibly. Scientists found, for example, that children in Wisconsin averaged a full inch taller than those in the warmer climate of Missouri.

Those in tropical Manila, Philippine Islands, averaged as much as two inches shorter than Filipino children raised in the northwestern United States, in a cooler average temperature.

Speed, Accuracy Boosted

(3) Healthier Working Conditions—Speed and accuracy both suffer as the temperature climbs. A man doing heavy fac-

tory labor is only half as efficient working at 100° F. temperature as he is when working at a 70° temperature.

The same holds true of the housewife going about her daily tasks of cleaning, cooking, and taking care of the family wash. With a room air conditioner to keep the temperature in the comfort zone she would get her work done in half the time and be much more refreshed than her air conditioner-less neighbors.

The same is true of the executive who must bring work home from the office—the man with the air conditioned room or house completing his work in half the time as the man without an air conditioner.

Tests showed that students attending summer school suffered an average mental efficiency drop of 40% during the hot, humid summer months. An air conditioned room is much more conducive to doing homework

and much more time-saving, permitting more time for outdoor summertime activities.

The overwhelming dust-load in the atmosphere around us can be turned into an effective year-round talking point. This crushing dust-load which is measured in tons-per-cubic-mile, costs the American public more than \$2 billion annually as it filters into homes, sending cleaning and repair bills skyrocketing, and is breathed into lungs, endangering the health of our people.

Air Pollution Seen as Vital Problem

A compilation of new information made by the foundation, shows that scientists, doctors, and civic leaders regard air pollution as one of our most pressing problems.

All agree, the foundation finds, that home air conditioning, whether a room unit or a central model, is the positive and important step that each person can take individually to solve the problem.

Extensive investigation by the Mitchell foundation has resulted in the following list showing the amount of dust particles in the atmosphere of various metropolitan areas.

The figures are based on a "fine dust survey" by the Robert Taft Sanitary Engineering Center of the U. S. Public Health Service and cover a cubic mile area up to approximately 100 ft. above street-level, it was explained.

Detroit, 153 tons; Charleston, W. Va., 128 tons; Chicago, 124 tons; Los Angeles, 118 tons; New York City, 108 tons; Philadelphia, 83 tons; Cincinnati, 78 tons; Kansas City, 65 tons; Portland, Ore., 64 tons; Atlanta, 61 tons; Washington, D. C., 58 tons; Houston, 57 tons; Minneapolis, 53 tons; Fort Worth, Texas, 49 tons; San Francisco, 46 tons; and Salt Lake City, 24 tons.

Upgrading Customer

"Such information," says the Mitchell spokesman, "gives dealers a special talking point in selling and up-grading their room air conditioner prospects."

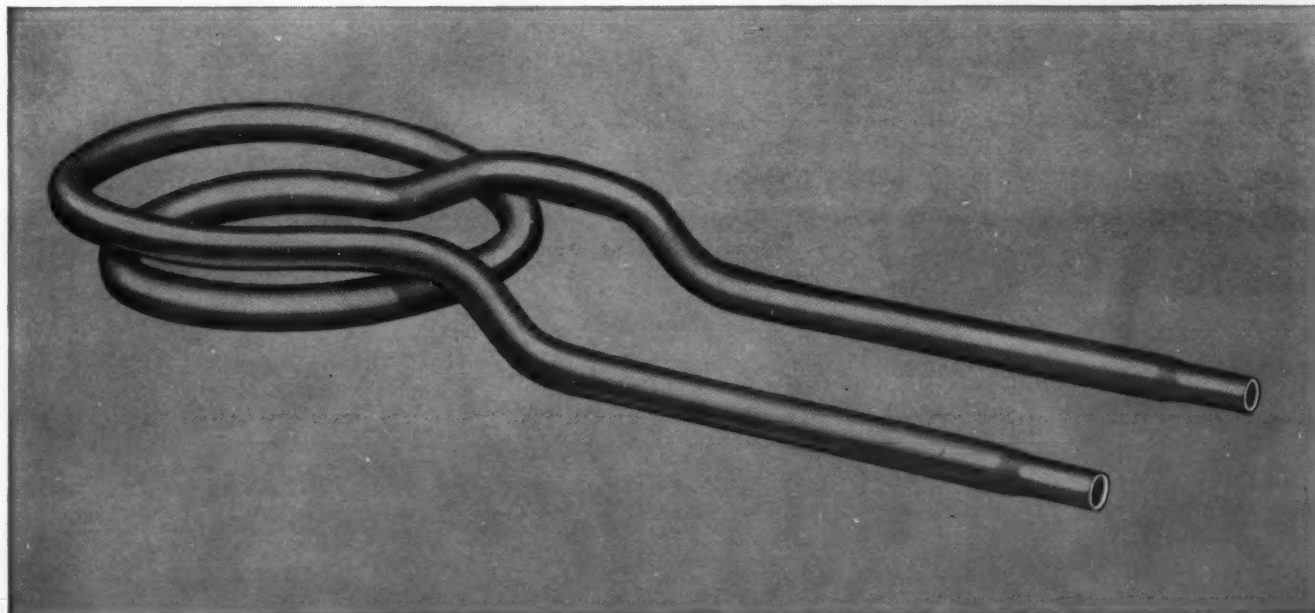
He quotes Dr. Sam A. Sanders, of Memphis, who told the American College of Allergy, "Many people who think they have a cold in the winter time actually are suffering from an allergy to house dust . . . the solution is to avoid the offensive dust or decrease it in the environment."

Such statements can be turned into direct selling points for the need for air conditioning in homes, for use in cold weather as well as in summer, Mitchell asserted.

"Although the room air conditioner is accepted as the fastest growing major appliance and sales are estimated at close to 2,250,000 for 1957, the best estimates available show that only one home in 20, or some 5% of the potential market, has air conditioning.

"A return to the basic approaches of health and comfort, therefore, is still a new story to many an unsold customer and a story which means attention to top-grade units and long-term customer benefits rather than short-term discount rates," the spokesman said.

on tubing fabricated to any shape to pretzel bends



Complex shape of this oil-cooler tube lets it clear moving parts inside a refrigeration compressor. Swaged ends are ready for brazing.

Here's why Bundy's efficient fabrication service is so economical:

Modern fabrication equipment, manned by skilled Bundy operators, bends and coils tubing into an almost limitless number of complex shapes. It's easily adapted to fill *your* specific requirements, at low cost. Our production schedules are timed to yours—to help you maintain close control . . . and costly production bottlenecks.

Versatile Bundyweld® Tubing makes the toughest fabrication job look easy. It's the only tubing double-walled from a single steel strip, and metallurgically bonded through 360° of wall contact. Result: tubing with high tensile and bursting strength; exceptional resistance to

vibration fatigue. *Bundyweld is leakproof by test!*

Expert engineering aid is yours just for the asking—at any stage in the development of your product, from initial design to mass production. Bundy's engineering staff thrives on solving difficult tubing problems; they would like an opportunity to tackle *yours*.

So if you need tubing for evaporators, compressors, condensers or refrigerant lines, you can profit from a call to Bundy. Take full advantage now of Bundyweld Tubing, and Bundy's fabrication and engineering services. Call, write or wire us today!

BUNDY TUBING COMPANY, DETROIT 14, MICHIGAN

WORLD'S LARGEST PRODUCER OF SMALL-DIAMETER TUBING • AFFILIATED PLANTS IN AUSTRALIA, ENGLAND, FRANCE, GERMANY, AND ITALY

There's no real substitute for

BUNDYWELD® TUBING

Bundy Tubing Distributors and Representatives: **Massachusetts:** Austin-Hastings Co., Inc., 226 Binney Street, Cambridge 42 • **Pennsylvania:** Rutan & Co., 1 Bala Ave., Bala-Cynwyd • **Midwest:** Lapham-Hickey Steel Corp., 3333 W. 47th Place, Chicago 32, Ill. • **South:** Peirson-Deakins Co., 823-824 Chattanooga Bank Bldg., Chattanooga 2, Tenn. • **Southwest:** Vinson Steel & Aluminum Co., 4606 Singleton Blvd., Dallas, Texas • **Northwest:** Eagle Metals Co., 4755 First Avenue South, Seattle 4, Wash. • **Far West:** Pacific Metals Co., Ltd., 2187 S. Garfield, Los Angeles 22, Calif. • **Pacific Metals Co., Ltd.,** 1900 Third Street, San Francisco 7, Calif.

Bundyweld nickel and Monel tubing are sold by distributors of nickel and nickel alloys in principal cities.

For more information about products advertised on this page use Information Center, page 18.

McCray Licenses German Firm To Make, Sell Commercial, Household Units

KENDALLVILLE, Ind. — An agreement licensing the Eisfink Co. of Asperg, Germany to manufacture products of McCray design was signed here recently by J. W. Krall, president of McCray Refrigerator Co., Inc. and Erich L. Fink, a partner and chief engineer of Eisfink.

The agreement grants Eisfink selling privileges all over the world except in Australia, New Guinea, and on the North American continent.

Eisfink operates four plants and has more than 30 branches and distributors, McCray pointed out.

It manufactures a complete line of household refrigerators, commercial display cases, coolers, reach-ins, condensing units,

coils, beer buffets, and restaurant equipment.

Although capable and equipped to produce a line of self-service equipment, Eisfink decided that a licensing agreement with an American manufacturer of this type equipment would save months of time, Fink indicated.

He noted that the trend to self-service is having an influence on food retailing in Germany and other countries.

To Construct Food-Freezing, Processing Plant In Canada

MONTREAL, P. Q., Can. — Construction has started on a \$700,000 food-freezing and processing plant at Sherwood, near

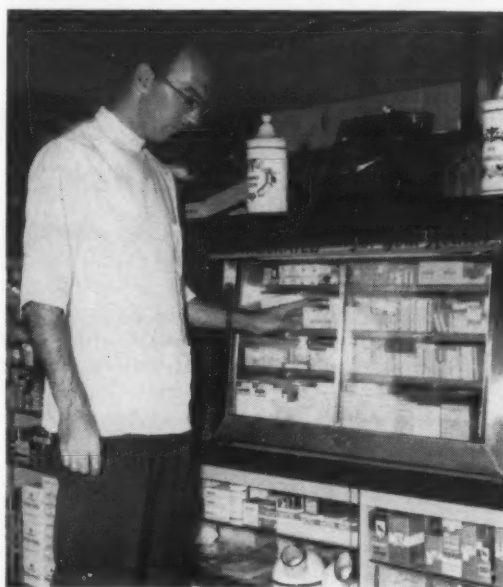
Charlottetown, P.E.I., W. H. Heeney, president of Heeney Frosted Foods Ltd., of Ottawa and LaPrairie, said.

The plant is expected to be in operation by June of next year. To operate it, a new company—Prince Edward Island Frosted Foods Ltd.—has been organized.

Kroger Center Features 80,000-Cu. Ft. Freezer

TOLEDO — Refrigeration and air conditioning will have an important role in a new expansion program announced for the food distribution center of the Kroger Co. on Hill Ave.

Carl S. Fuller, vice president of the Toledo division, said an 80,000-cu. ft. freezer room will be included in the project. Plans include air conditioning of the entire 720,000-cu. ft. fresh fruit and vegetable section.



MANAGER Karl Kubitschek of Ruppert's Pharmacy in Lincoln, Neb. reaches for insulin in this 4-ft. Lern self-service refrigerated case. Sales of the drug rose one third in the first week of use.

Refrigerated Display Case Ups Pharmacist's Insulin Sales 1/3

LINCOLN, Neb. — A four-foot self-service Lern refrigerated vending case with sliding glass doors boosted insulin sales more than one-third in the first week of operation at Ruppert's Pharmacy, 13th and "N" Sts., according to Manager Karl Kubitschek. He figured that the visual case should more than pay for its cost in added sales in a six-months' period.

The refrigerator was part of the recent remodeling of the prescription department. Insulin previously had been stored out of sight and customers had to ask a drug clerk to get it for them.

The new case has shielded fluorescent tubing which lights up the contents and makes it easily visible from over the entire floor. The light shielding bears the words, "Refrigerated For Your Health."

Rearrangement of merchandise was included in the prescription department remodeling. First aid and sickroom supplies were grouped around the refrigerator in a 20-ft. display case with adjustable metal shelving and sliding glass panels.

It was installed in front of the

open prescription department. The refrigerator was built in a waist-level to facilitate customer shopping.

Items carried in the case include insulin, vitamin preparations which require refrigeration, suppositories, etc., which are sold over the counter.

Declares Dividend

BUFFALO — Directors of Buffalo Forge Co. have declared a dividend of 35 cents a common share, payable Aug. 29 to stockholders of record Aug. 19. The company paid the same amount in two previous quarters this year.

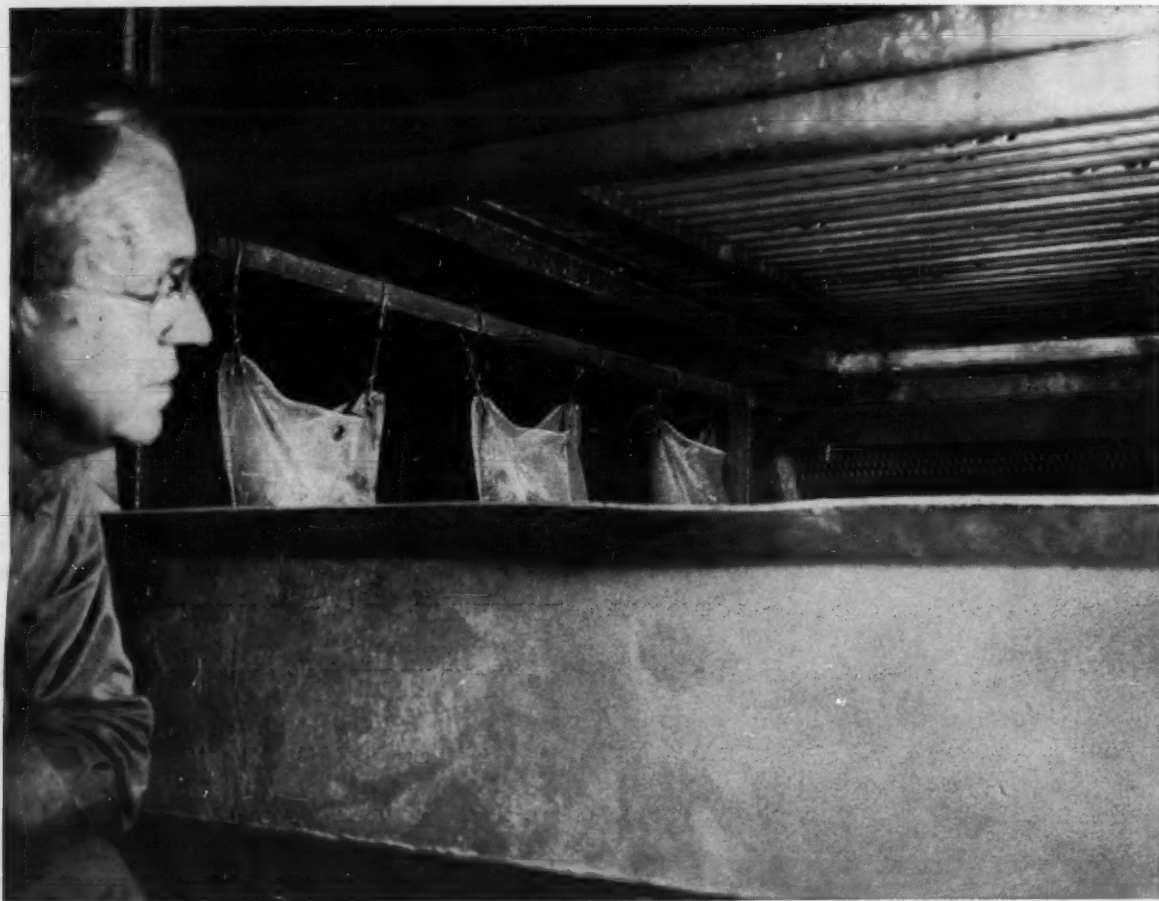
HYALO MODEL CS

CONDENSATE PUMPS

- TWO INCH DRAIN
- MAGNETIC CONTROL
- HEADS TO 20 FT.
- COMPLETELY WIRED
- 115 V. OR 220 V.

WRITE TO
EDDINGTON METAL SPEC. CO.
EDDINGTON, PA., U.S.A.





"CALGON TREATMENT is by far the most effective"

J. L. Warren, Refrigeration Maintenance Engineer

Mr. Warren has been working with refrigeration equipment since 1918. He says that during that time he has found nothing to equal the Calgon Big 3 in effectiveness, economy and trouble-free use. Calgon® Scale Remover has been used to clean the water-cooled condensers so thoroughly that they have been restored to their original capacity, and Micromet® Plates are used to keep the system clean. Mr. Warren is the refrigeration maintenance engineer at Colonial Stores warehouse in Raleigh, N.C.

Calgon's Big 3 have established an enviable reputation among refrigeration and air conditioning maintenance people. Each of the three products does its job efficiently, safely and economically.

1. Calgon Scale Remover makes it easy to clean up a system. Corrosion inhibitors protect system while in use. Special built-in pH color indicator shows how much Scale Remover to use, and helps tell when system is clean.
2. Micromet Plates provide continuous treatment to inhibit further scale formation and to control corrosion. A single charge will last about six months and the inexpensive feeding bag is easily installed.
3. Calgon Algaecide controls algae and slime growths. Periodic addition keeps equipment operating efficiently.



SEE YOUR
REFRIGERATION WHOLESALE
FOR CALGON'S BIG 3!



CALGON COMPANY

A DIVISION OF HAGON CHEMICALS & CONTROLS, INC.
HAGON BUILDING, PITTSBURGH 30, PENNSYLVANIA
DIVISIONS: CALGON COMPANY • HALL LABORATORIES

**YOU NEED
NO EXTRA
FLOOR
SPACE!**

New SCHMIDT

OUTDOOR, WALK-IN
"spacemaker"



- Coolers, Two-Temp and Freezer Models
- Outdoor or Indoor
- Sectional Construction for Custom-Built Refrigerated Storage

Boost your profits with the new SPACE-MAKER series . . . meet every budget need! Write for details today.

THE C. SCHMIDT COMPANY
1712 John St., Cincinnati 14, Ohio



NEMA Div. Elects Officers, Plans High Level Sales Promotional Drives

HOT SPRINGS, Va. — New officers were elected and plans for continued high level sales promotional programs for 1958 discussed by the Major Appliance Div. of the National Electrical Manufacturers Association during the division's annual three-day convention.

New officers also were named by constituent product sections of the division at meetings held in connection with the convention.

In addition, manufacturers heard encouraging reports on the continuing trend toward electric cooking, and on the dramatic swing to built-in electric range units during recent years.

Charles K. Rieger, a vice president of General Electric Co. and general manager of its

Appliance & Television Receiver Div., was named chairman of the division for the ensuing year. He succeeds R. J. Sargent, manager, marketing and distribution, Consumer Products Div., Westinghouse Electric Corp.

John A. Hurley, vice president in charge of RCA-Whirlpool sales, Whirlpool Corp., was elected vice chairman of the division.

C. J. Prashaw, chairman of division's Program Coordinating Committee, and supervisor, electric power sales, Frigidaire Div., General Motors Corp., presented a review of next year's promotional activities.

Highlighting programs to be conducted by Electric Range and Household Refrigerator and Freezer Sections will be a coor-

ordinated activity between the manufacturers and the utility companies to distribute teaching kits about electric ranges and freezers to all home economics instructors.

The Electric Range Section will work closely with home builders by supplying them with direct mail material to pass out to prospective home buyers and to their sales personnel. In addition, builders will be supplied with display cards for use on electric ranges installed in model homes to call attention to the advantages of cooking electrically.

The Electric Water Heater Section has decided to push the story of the quick recovery water heater for the first time next year.

Member companies in the Household Sink Units Section voted to intensify their program to still further increase the sale of automatic electric dishwashers. Sales of this appli-

ance have almost doubled each year since 1954, with 1956 sales hitting an all-time peak of \$100,000,000, it was noted.

On the business side, the nation's appliance manufacturers heard H. E. Weimer, general manager of market research, Whirlpool Corp., say that the "current trend is toward electric cooking." He stated that electric cooking has increased by 10% over the past five years with "much of this gain accounted for by the swing toward electric built-in ranges."

He warned, however, that the spurt toward built-in ranges also poses a problem in that most of this equipment now is sold through builders and, therefore, its sale is tied almost entirely to new housing starts. When construction slows down, so does the sale of built-ins.

The problem, therefore, is to encourage the installation of more built-in units in existing homes as a part of kitchen

modernization plans, he said.

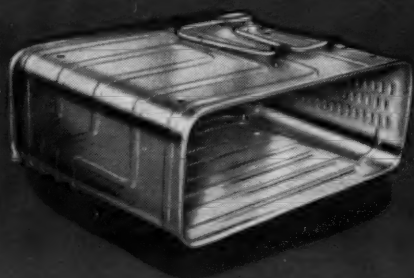
Builders, he said, are seeking other opportunities for home sales features which will work just as effectively as built-in electric ranges and, he posed the question: "If it works for ranges, why won't it work for other major appliances?"

In addition to the division's meeting, constituent product Sections held their own separate business sessions.

Elected officers of the Household Refrigerator and Freezer Section were:

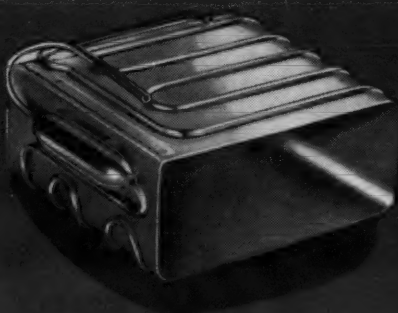
Chairman—E. T. Morton, merchandising manager, refrigerators, freezers, and ice cube makers, Whirlpool Corp.; vice chairman—E. B. Barnes, general sales manager, Kelvinator Div., American Motors Corp.; chairman of General Engineering Committee—Frank Hausfeld, chief engineer, RCA-Whirlpool refrigerators and freezers, Evansville Div. of the Whirlpool Corp.

BOHN offers the only COMPLETE LINE of ALUMINUM "LOW-SIDE" PRODUCTS

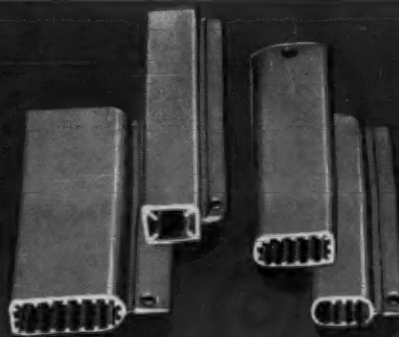


BONDED-SHEET EVAPORATORS

Production quantities of both types are being produced by Bohn for the country's leading refrigerator manufacturers. Whatever your evaporator problems, it will pay you to take advantage of Bohn's experience and complete engineering service.



TUBE-ON-SHEET EVAPORATORS



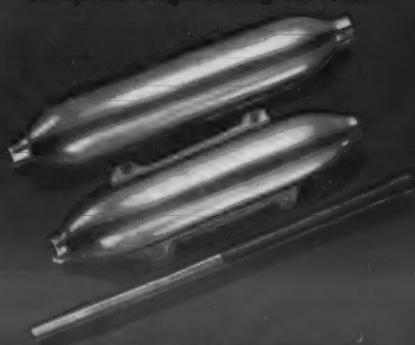
SPECIAL TUBULAR HEAT TRANSFER PRODUCTS

Bohn engineering assistance and wide experience are available for application problems.



ALUMINUM FIN AND COPPER TUBE EVAPORATORS

Presently being supplied to the industry, combine high efficiency with lower cost.



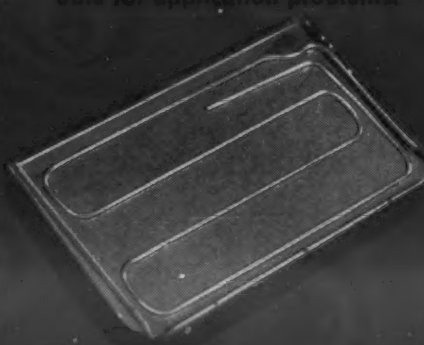
MISCELLANEOUS PARTS

Simple or complex Bohn high quality aluminum accumulators are uniformly produced at lowest possible cost. Every Bohn connector double-checked for perfection.



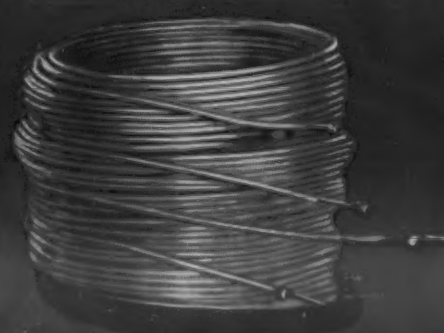
MULTIPLE FREEZER SHELVES

Shipped as shown. No joining or further processing required. Simply open out and install. Bohn triangular aluminum tubing gives shelves greater rigidity and primary freezing surface.



TUBE-ON-SHEET FREEZER SHELVES

Bohn freezer plates made with seamless aluminum tubing freeze food faster at less cost, provide uniformly low temperature throughout freezer.



COILED TUBING

Bohn aluminum tubing is available complete with copper brazing spuds. Investigate the savings possible by switching from copper to aluminum tubing.

FREEZER PLATES
UNIT COOLERS
EVAPORATORS
CONNECTORS
TUBING
COILS

BOHN

For more information about products advertised on this page use Information Center, page 18.

For the *only* complete line of refrigeration products and for complete engineering service . . . look to Bohn . . . the one manufacturer who has more experience than any other in the aluminum "low side" product field.

ALUMINUM AND BRASS CORPORATION
DETROIT 26, MICHIGAN

SALES OFFICES: Atlanta • Boston • Chicago • Cleveland • Dayton • Detroit • Indianapolis • Milwaukee • Minneapolis • Moline • New York • Philadelphia • St. Louis

Advises Individual Attention

Air Conditioning System Must Be Designed for Specific Temperature, Humidity, Air Purity Range of Electronic 'Brain'

SAN FRANCISCO — Proper air conditioning is an essential aspect of any electronic data processing installation if the customer is to obtain optimum value from his purchase.

Since each computer installation is custom designed to meet the particular needs of the purchaser, the air conditioning plan must also receive individual attention.

Many Factors Enter In

Many factors enter into this planning—the type of data processing system to be installed, the physical limitations of the computing room, the air conditioning load from personnel, lighting, and other building re-

By Rowland Fellows, Western Regional Physical Planning Engineer, International Business Machines Corp.

Air conditioning and electronic data processing systems are partners. Rowland Fellows explains details. He is an electrical engineering graduate of University of Colorado, and had a year's graduate work in mathematics at University of California, Berkeley.

Not all equipment requires air conditioning. IBM's basic punched card equipment, including the 604 electronic calculator, was not discussed here because atmospheric control is not an engineering requirement with this system. Where a number of these machines are used in the same room, it is sometimes necessary to supply air conditioning for comfort of the personnel, however.

quirements, future additions to the electronic system, seasonal variations in weather, and the like. In each case the customer must weigh the importance of maintaining his computing system on a maximum operating

System Number	° F.	Limits % r.h.	Filtration
650 Card Computer	50-90	20-80	20%
650 Tap & Ramac			
With Mylar Tape	50-90	20-80	20%
With Acetate Tape	65-80	40-60	40%
700 Series and Auxiliary units	65-80	40-60	40%
305 Ramac	50-90	0-80	20%

TABLE gives limits of various International Business Machine electronic data processing systems.

schedule against the cost of the various air conditioning alternatives, and design his air conditioning system accordingly.

About a year before the actual equipment installation, an International Business Machines special representative in physical planning meets with the customer to explain the requirements of the data processing equipment, and to discuss the alternatives in air conditioning design. About eight months prior to installation, design drawings are begun and equipment needs determined.

To meet the needs of indus-

try's long lead times, the customer is encouraged to place orders for the major air conditioning equipment components six months before the computer installation date. In all matters regarding physical installation of equipment, the IBM special representative serves strictly in the role of advisor to the customer and his engineering staff.

System requirements—Each electronic data processing system, as well as its auxiliary components, requires a specific range of temperature, humidity, and air purity to function properly. If these limits are exceeded, alterations in the equipment can occur which may result in the loss of valuable operating time on the machine. In any system, the unit with the most stringent atmospheric requirements sets the limits for each system as a whole.

The following table gives the limits of various IBM electronic data processing systems:

As the table shows, when tape is used in the 650 system, requirements vary with the type of tape. The acetate tape needs closer environmental control because it is more dimensionally sensitive to temperature changes and absorbs moisture more readily from the atmosphere. Tape can also be used in a 700 series system, but since the limits of the tape do not exceed those of the system, itself, the atmospheric requirements of the room are not altered.

In addition to moisture and temperature changes, air purity is an important consideration. Both the 700 series and the Acetate tape require air purity levels somewhat above those of normal comfort. The filtration requirements recommended in the above table are based on the U. S. Bureau of Standards Discoloration tests using atmospheric dust, and the efficiency of the filter is measured when the filter is clean.

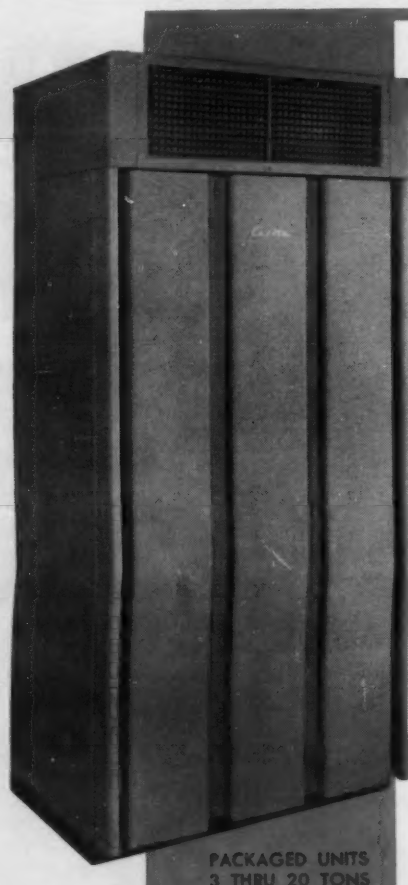
Reasons for Limits

Some of the reasons for the above limits are:

1. The units are made up of modular electronic components which have terminal strips separated by insulating barriers. With improper air purity control, dust may settle out on the insulating barrier, causing resistance or shorting in the unit.
2. With an excess of humidity in the computing room, shorting of the brushes utilized in the system is possible.
3. With certain high humidity, high temperature combinations, crystallization or a fungus-like growth can develop around the high voltage pins, resulting in resistance or shorting.
4. An exposure to temperatures outside the stated limits can bring about permanent changes in some of the diodes in the system if the equipment is not taken out of operation promptly.

The heat generated by the machine itself is the major fac-

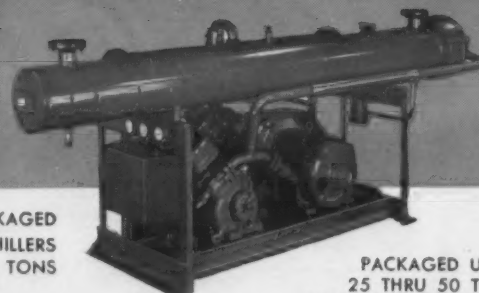
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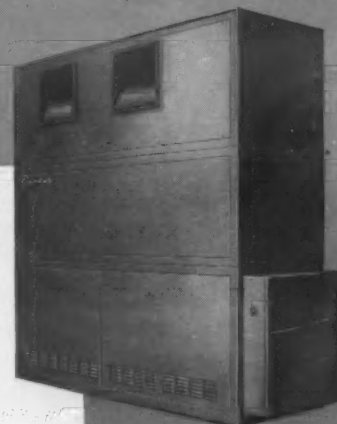
PACKAGED UNITS
3 THRU 20 TONS



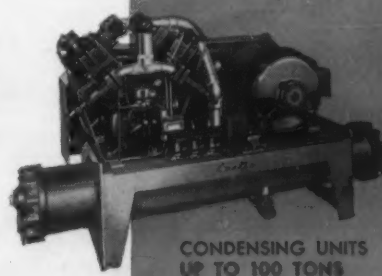
PACKAGED AIR
COOLED UNITS
UP TO 7½ TONS



PACKAGED
LIQUID CHILLERS
UP TO 100 TONS



PACKAGED UNITS
25 THRU 50 TONS
INTEGRAL EVAPORATIVE
CONDENSER OPTIONAL



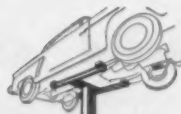
CONDENSING UNITS
UP TO 100 TONS



INDUSTRIAL
AIR COMPRESSOR



AIR HOISTS
AIR CYLINDERS



AUTO LIFTS

A Curtis FRANCHISE

MAY BE THE ANSWER!

Curtis has been in business for 103 years and through experience has learned how to maintain a mutually profitable relationship with our franchise holders. Curtis equipment is competitively priced, quality built, and nationally advertised.

Write for details

LOOK AT THE CURTIS LINE

CAN COUNT ON
REMEMBER...
YOU

Curtis

OUR 103rd YEAR
MANUFACTURING COMPANY
REFRIGERATION DIVISION
1912 Kienlen Ave. St. Louis 20, Mo.

Electronic Brain Air Conditioning--

(Concluded from preceding page) tor in determining air conditioning needs for the computing room. The importance of this variable can be illustrated through a comparison of two IBM systems—the 650 card computer and a minimum 650 Ramac System (without tape).

The two have roughly similar atmospheric requirements, but the heat released by the 650 Ramac System when in service is three times greater than that of the 650 card computer. Because of this heat differential, the card 650 can normally be handled by ventilating ducts rather than special air conditioning units, while air conditioning is desirable for the minimum 650 Ramac system.

Below is a table which shows heat output of various systems:

System Number	B.t.u./hr.
650 Card Computer ..	50,000
305 Ramac	60,000
650 Tape & Ramac ..	160,000 to 280,000
700 Series	220,000 to 400,000

Air Conditioning Design—When an air conditioning system is indicated, IBM recommends that a separate system be installed, with a unitized arrangement of compressors, to insure year-round operation in the computing room.

Advantages of Unitized Setup

With the unitized arrangement, a failure in one compressor does not disrupt the entire air conditioning system for the room, and, in addition, lends itself readily to future enlargement of the data processing system. The customer is similarly advised to design ducts and fan motor to meet future additions.

In most cases, a central type of air conditioning system is recommended, although certain types of package units might serve as well for the 650 tape system.

IBM electronic data processing equipment is internally cooled by the use of fans in most of the units which suck the air into the machine at the base, circulate it to all components, and discharge it from the top at an increase of 15 to 20°.

In order to keep the room temperature from continuously rising, the discharged air from the machine, as well as the normal personnel and building loads, must be constantly replaced with conditioned air.

Plans Commonly Used

A number of plans are commonly used to meet the problem:

1. One method is to feed conditioned air of about 65° directly to the base of the machine. The warm air is then removed by ceiling return air grilles, and a secondary supply of conditioned air is introduced through diffusers in the ceiling to handle personnel, lighting, and other room factors.

This plan is particularly adaptable to the 700 series computers since these are usually installed on a raised floor to allow cabling between the units for interconnecting components. If care is taken to allow adequate space for cabling, this area can be used for air conditioning ducts as well.

2. A second method is based on essentially the same concept

of the first with the exception that the entire floor area is used as an air conditioning plenum and air is introduced to the base of the system through registers in the floor itself.

3. A third plan allows the computing units to draw air directly from the room. An overhead duct system is installed to handle the discharged air from the top of the machines as well as from the room as a whole. The discharged air is emitted at higher temperatures than in the first two methods, placing a proportionately greater work load on the overhead air conditioning equipment and making this system somewhat more difficult to balance.

4. This method is similar to the third design except that the dropped ceiling over the units is used as an air conditioning

plenum. With the large number of air changes inherent in meeting the design requirements, the overhead plenum is helpful in coping with the obvious draft problem.

In singling out any one area of planning for discussion, it is important not to lose sight of the fact that all phases of a data processing installation must be coordinated. The air conditioning system cannot be engineered apart from such considerations as other demands on the power supplies, the architectural design of the computing room, the position of the computing units, and plans for later additions to the system.

One of the functions of IBM's special representative in physical planning is to aid the customer in understanding the over-all picture so that full value will be derived from time and energies expended in preparing for the installation.

962 Installations In '56 Up Fort Worth's Central Units to 5,275

FORT WORTH, Texas—Included in the 1956 total of 962 installations of 8,227 tons of air conditioning in this city were central unit jobs in three apartment houses, 38 stores and sales floors, 25 groceries, 19 restaurants, 12 drugstores, and 10 clinics and physicians' offices, according to the local Chamber of Commerce publication.

In addition, central systems were placed in 32 clubs, a hospital, three barber shops, 10 beauty shops, five banks, a funeral home, two theaters, a photogra-

phy studio and a laboratory, two industrial plants, and six miscellaneous points, it was indicated.

Fort Worth is claimed by the C of C to now have 5,275 central air conditioning installations which total 87,631 tons of refrigeration.

Stories in the publications also covered air conditioning manufacturers of this city including Lennox Industries, Inc., Cobell Industries, Inc., Mathes Co., A.R.A. Mfg. Co., and Clardy Automobile Air Conditioning Co.

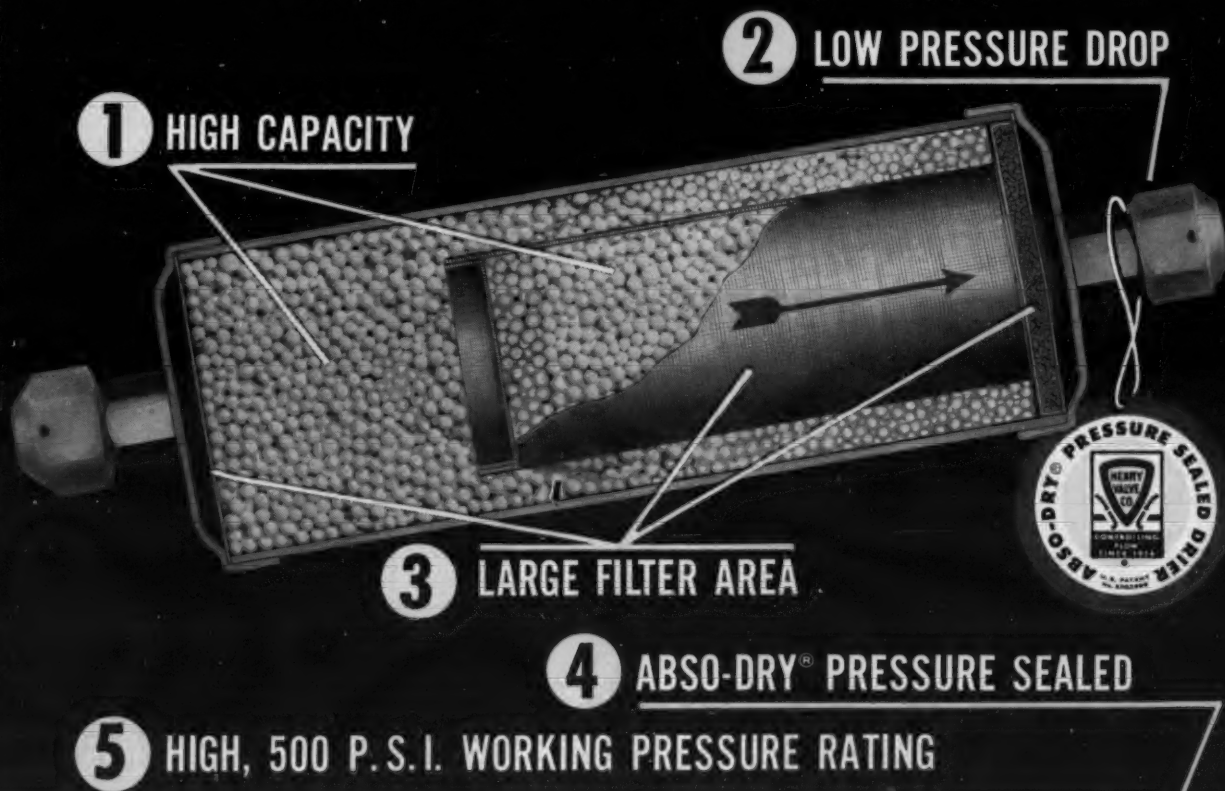
Navy To Build Air Conditioned Hospital at Great Lakes

CHICAGO — Construction of "the finest naval hospital between Bethesda, Md., and San Diego, Calif., will begin soon at the Great Lakes Naval Training Center.

The structure, costing \$12.5

million, will be 12 stories high, completely air conditioned, and will house 800 beds. It will be built on the site of the present 97-building "temporary" hospital. Completion is scheduled for 1960.

This NEW HENRY V200 FILTER-DRIER Gives You These 5 Advantages



Reasons Why You'll Like the V200

Filled with H-151 Activated Alumina balls, having very high moisture adsorption capacity with very low pressure drop. H-151 will also effectively pick up acid and remove carbonized oil.

Large filter area and multi-stage filtering through the use of screen cones in smaller sizes and screen cylinders in larger sizes, with glass wool outlet filter element, assure a very high degree of filtration.

To obtain maximum drying efficiency, each filter-drier is thoroughly reactivated. All those furnished with flare connections, by an exclusive patented manufacturing process, provide positive indication by pressure sealing that the drier is tight, dry and factory-fresh.

High working pressure rating, 500 psi, provides necessary safety factor even for use with air-cooled air conditioning systems employing Refrigerant 22.

Steel construction with brass end connections—silver brazed joints—durable molded nylon seal caps.

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*TRADE-MARK

U. S. Patent No. 2,283,989

When the end connection seal of a new Henry drier is loosened prior to installation, there is a hissing sound due to the escape of dehydrated air.

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The complete range of types, capacities, and connection sizes permits the selection of the proper Henry drier for any installation.

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Inside Dope

By GEORGE
F. TAUBENECK

(Concluded from Page 1, Col. 1)

And that leads into an introduction for the rest of this column. Not so long ago "Inside Dope" mentioned that we were collecting funny typographical errors. Again reader response was delightful. Not only have you grand people sent us delicious "typos," but unconsciously humorous headlines and advertisements as well. Herewith a choice selection.

Etaoin Shrdlu

Persons invited to the luncheon will be friends and wives of the GM research consultant.—*Dayton Journal Herald*.

The couple was married last Wednesday, thus ending a

friendship which began in their school days.—*Salt Lake City Deseret News*.

One-half the married couples are related to six or more other families in the area around Detroit, some almost daily.—*Detroit Free Press*.

For Sale—White Spitz Puppies. Call at Hot Dog Stand.—*Wellston (O.) Sentinel*.

Mrs. Doherty is a Romantic Catholic.—*New York Times*.

Town to drop school bus when overpass is ready.—*Providence Evening Bulletin*.

It accused him of sabotaging one of Khrushchev's pet programs—the development of virgin farm lands to boost agricultural production.—*Raleigh News and Observer*.

The Misses Doris, Agnes, and

Vivian Smith are spending several days at the home of their mother, Mrs. W. W. Lawrence. This is the first time in years that the community has had the pleasure of seeing the Smith girls in the altogether at one time.—*Sidney (O.) Daily News*.

Advice to Dad: Put Foot Down With a Firm Hand.—*Los Angeles Mirror-News*.

NEW AUTOS MAY HIT 6 MILLION.—*San Francisco Examiner*.

All profits will go toward spraying the community with mosquitoes.—*La Salle (Ill.) Daily News-Tribune*.

The woman's body was found after two fishermen discovered her in their shack, cooking breakfast, and told police.—*Columbus Enquirer*.

Elder Valse, pastor of the

Soul Stirring Church, Brooklyn, will speak here at eight o'clock. She will bring a quart with her and will sing appropriate selections during the service.—*Bridgeton (N.J.) Evening News*.

Ludwig H. Clifton was elected vice president and controlled.—*Wall Street Journal*.

Mr. Hoffman returned Tuesday to Gastonia after visiting his daughters, Misses Miriam and Frances Hoffman, in Washington. The former is enjoyed by the War Department and the latter by the Treasury Department.—*Gastonia (N.C.) Gazette*.

Supervisors to Meet With City on Dump.—*Alhambra Post-Advocate*.

Stenographer — Five years legal exp. seeks permanent connection. Late 1947 model, good shape, many extras, used for pleasure spins by private owner.

A real bargain.—*Cleveland News*.

Seven Democrats joined the Republicans at this joint to approve it.—*Buffalo Courier-Express*.

The old excuse that "nice guys" are hard to find is unmitigated malarkey. Boston has hordes of them. The reason you are still single is because you haven't exposed yourself in the right places.—*Boston Post*.

In line with its title, this work could, indeed, be a useful take-off point for discussion by women's organizations concerned with the study of public affairs and the larger issues in morals, politics, and economics that are reflected in public affairs. But it should also prove stimulating to any intelligent reader.—*Wall Street Journal*.

Our apologies to Harry R. Levine in a report on his daughter's wedding. The carpeting in Mr. Levine's home, Firth's Geneva Chenille, was erroneously identified as a cotton fabric. It is all wool.—*Retailing Daily*.

She had married another man, by whom she had two more children.—*New York Herald Tribune*.

Girl as bar maid; bust be attractive.—*Seattle Post-Intelligencer*.

The slutty, red-haired actress tied the knot yesterday.—*Little Rock Arkansas Democrat*.

The out-of-control inferno, driven by guests up to 45 miles an hour, had cut a swath seven miles wide and 14 miles long.—*Detroit Free Press*.

Mrs. Bertha Bradley entertained the Ladies' Social Club. She asked the ladies to come dressed like tramps and that was easy for most of them.—*Sparta (Ill.) News-Plain-Dealer*.

Back Bay Woman Hit By Car in South End.—*Boston Daily Globe*.

There is a picnic during the two-day outing which practically doubles the population of the town each year.—*Kiwanis Magazine*.

The booklet will be distributed to school children in attempts to get the wildest possible distribution.—*Albuquerque Tribune*.

The fire cause damage estimated at \$25,000. It was partially caused by insurance.—*Scranton Tribune*.

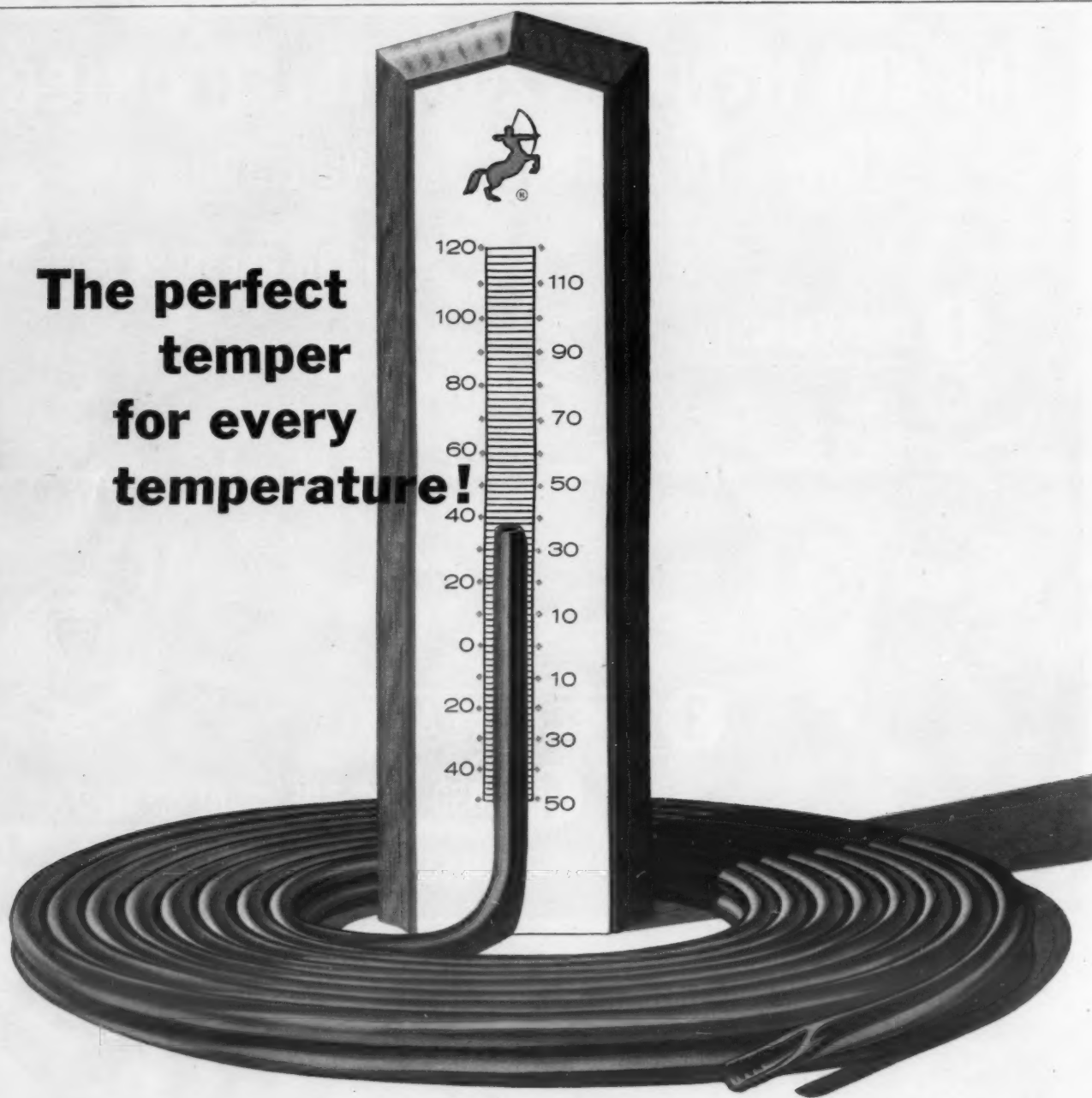
The service opened with the vocal hymns "Lead Kindly Light" and "I Need Three Every Hour."—*St. Joseph (Mo.) News-Press*.

Breeding Group Plans Field Day at Tunkhannock.—*Scranton Tribune*.

Secrets of Charm: Leave Trousers Home When You Travel.—*Charleston (V. Va.) Daily Mail*.

Wanted — experienced housekeeper; good wages. Two in family; good referee essential.—*Newark (Ohio) Advocate*.

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temper
for every
temperature!



CHASE® copper refrigeration tube

You can count on peak efficiency heat-transfer at all temperatures when you use Chase Copper Refrigeration Tube.

Chase tube is uniform in temper... permits ample expansion and contraction with any type refrigerant. No loose connections. No heat-transfer loss.

Chase has established special mill procedures for copper tube used by the

refrigeration and air-conditioning industry. In addition to 100% visual inspection, each coil of Chase Refrigeration tube is pneumatically tested to insure tops in quality.

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For more information about products advertised on this page use Information Center, page 18.

Refrigeration Man 'Creates' Market for Own Services

Sharp Freezing Piping Hot Pizza, Spaghetti, Ravioli For Take-Out Boosts Italian Restaurant's Food Sales

BELLEVILLE, Ill.—One example of how the refrigeration contractor can actually "create a market" for his own services, is Bonnelles, well-known Italian restaurant here, which has more than doubled sales of its specialty favorites through quick-freezing them for a two-state market.

Bonnelles is one of the oldest Italian restaurants in western Illinois. It has featured pizza, ravioli, spaghetti, and meat balls, and other Italian dishes for more than two decades.

In the beginning, sales were limited to the immediate Belleville area and walk-in customers, and the restaurant frequently had to turn away patrons who could not wait for service, it was explained.

Then Lee Kiefer, head of L. H. Kiefer Sales and Service Co. came into the picture.

A regular patron of Bonnelles, Kiefer was himself disappointed on several occasions through having to "get in line" for a meal at Bonnelles, and, on hearing that pizza and other Italian foods have been successfully frozen by New York restaurants, he broached the idea to owner Tony Bonnelle.

"Why not," Kiefer asked the restaurant owner, "experiment with freezing of all of the restaurant's most popular items for quick heating and serving at home?"

Installs -10° Reach-In

Bonnelle, disturbed by the large percentage of customers who had been disappointed at not getting a table in the restaurant, liked the idea and had Kiefer install first a small reach-in refrigerator which would produce a 10° below temperature.

One by one, the restaurant owner and Kiefer experimented with pizza in six different varieties with spaghetti and meat balls and sauce, ravioli of a dozen varieties, etc. In each case it was found that it was perfectly feasible to sharp freeze the item so long as this operation was carried out when the product was piping hot from the kitchen and packaged while frozen rock hard.

Survives Sharp Freezing 'Admirably'

It was learned that pizza in the most popular varieties including with sausage, anchovies, pepperoni, etc., would survive the freezing admirably, and would remain as tasty as when removed from the oven when reheated at home. Spaghetti, all of it made in the Bonnelle kitchen from durum wheat, could be best frozen when thoroughly cooked, it was found, and would not withstand quick freezing in the uncooked state.

No serious problems of any sort presented themselves with spaghetti and meat balls, it was explained, or even with meat sauce, which it was feared would pick up a waxy taste.

Pizza, it was found, was best packaged in 5 or 9-oz. squares on a cardboard backing, wrapped in acetate, while all of the other

products are simply packaged in paper cups in one quart sizes.

After six months of testing with a small reach-in refrigerator, Bonnelle was enthusiastic enough to ask Kiefer, an authorized Frigidaire refrigeration contractor for more than 30

years, to install larger capacity equipment.

The result of this decision was the installation of a 12-level walk-in sharp freezer at the rear of the restaurant, which is large enough to contain an average of 600 frozen orders simultaneous-

ly and which will freeze even heat-retaining dishes such as meat sauce in from 45 minutes to one hour, it was noted.

All five varieties of pizza are packaged hot, straight from the oven, popped in the top three levels of the freezer.

Spaghetti and meat balls are frozen in one quart paper containers, containing a pint of sauce, 12 ozs. of spaghetti, and several ounces of cheese. The spaghetti and meat ball combination, incidentally, which re-

tails at 79 cents, has proved far and away the most popular frozen item, according to Douglas Rowland, Bonnelle's son-in-law, who succeeded to the management of the restaurant following Bonnelle's death.

All preparation, refrigeration, and packaging are carried out in the same area at the rear of the restaurant and the frozen products have sold with increasing popularity in the local market which includes most of Missouri and Illinois.

Restaurant & Bar Equipment

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Regulators

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Published Every Monday by BUSINESS NEWS PUBLISHING CO., 450 W. Fort St., Detroit 26, Mich. Telephone Woodward 2-0924. Subscription Rates: U. S. and Possessions and Canada: \$6.00 per year; 2 years, \$9.00; 3 years, \$12.00. All other countries: \$10 per year. Single copy price, 40 cents. Ten or more copies, 30 cents; 50 or more copies, 20 cents each. Send remittance with order.

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VOLUME 81, No. 16, SERIAL No. 1,482, AUGUST 19, 1957

**OFF THE CHEST****SEEKS REFRIGERATOR-FREEZER TRUTH CAMPAIGN**

Thermador Electrical Mfg. Co.
Los Angeles, Calif.

Editor:

I have been completely perplexed by statements in ads by the leading manufacturers of refrigerator-freezers relative to the supposed capacity in the refrigerator-freezer storage areas. It is general knowledge that manufacturers in figuring the storage capacity of these areas, in pounds, compute them in accordance with the American Standards Association Standard B38.1-1944, at 35 lbs. of food per cubic foot. But try to get 35 lbs. per cubic foot.

Manufacturers are careful not to state what classification of food—whether it be meat, ice, ice cream, or what have you. We at Thermador know that it is misleading and actually untruthful to make such a statement. We have to admit that we were misguided and used the same standard in setting up the capacity of the freezer compart-

ment in our new Refrigerator-Freezer.

In making actual tests with what the housewife would be using, we found it no way possible that 140 lbs. could be stored if you considered the food basket, food rack, and ice cube trays which are an integral part of the unit.

We believe that it is time that we stopped hiding under the mantle of standards and tell the public the truth. Our reason for writing to you is to seek your opinion and to ask that you start a truth campaign in your editorials to encourage all manufacturers to be honest in their advertising.

In all re-runs of catalog data and advertising, we will not refer to "pound" capacity. To be ridiculous we could load the freezer compartment with lead and surely would have it over our competition as long as we did not refer to pounds of "what."

ANTHONY A. CELIO

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Keep up-to-date on what's going on in your industry. You'll see action weekly in AIR CONDITIONING & REFRIGERATION NEWS. Covers latest news and gives you top how-to-do-it reports on commercial and residential air conditioning, heating, commercial and home refrigeration: manufacturing, contracting, distributing, retailing, and servicing. Read the Industry's newspaper for profit every week. Only \$6.00 per year, 52 issues (U.S. and Canada). Foreign: \$10.00 per year.

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Are Consumers Brainwashed By Motivation Research?

BY UTILIZING prescriptions of applied psychology and psychiatry, "motivation experts" are making us puppets—and we don't even know what's happening to us. That is the gloomy thesis of Vance Packard, author of *Hidden Persuaders*.

"Motivation" researchers plumb our psyches, hidden anxieties, aspirations, frustrations, and aggressions—not to find methods for relief of their unserviceable aspects or to channel usefully the positive ones—but to play on our total subconscious drives for gelt and pelf," he says.

Practitioners of this dark new art are compared to brainwashers by Packard. Merchandising-wise they wield an invisible club-like baton of applied depth psychology over the "secret, silent symphony of our discontents, hopes, strivings," according to the author.

If these allegations are true, Machiavelli was a piker. The Motivation Research men wage "a calculated campaign to stir us up, to find and expose the raw nerve and saw away at it until it sings in agony the sponsor's commercial—to convince us that only his product will bring surcease."

Today's alleged Machiavellis are striving to make us spend our discretionary dollars their way. The MR boys develop "the Engineered Yes," and "the Packaged Soul" in our over-all cultural climate. MR tries to educate the public in "semantic dysfunction." (Oh, brother!) That is, it teaches irrational responses to symbols rather than sane reactions to realities. This technique isn't used simply to sell goods. It has served in politics as well.

Some pertinent questions posed by Mr. Packard:

"What is the morality of playing upon hidden weaknesses and frailties—such as our anxieties, aggressive feelings, dread of non-conformity, and infantile hangovers?... Manipulating small children even before they reach the age where they are legally responsible for their actions?... Exploiting our deepest sexual sensitivities and yearnings for commercial purposes?... Developing in the public an attitude of wastefulness toward national resources by encouraging psychological obsolescence?"

Among the precepts taught by motivation research experts is devious exploitation of eight hidden needs. As an example, to sell freezers, they recommend that dealers

forget their function and stress emotional security (the freezer is a bountiful mother). "Play on the need for reassurance of worth. In this way you can sell detergents, not for cleanliness, but by stressing the dignity of housework." If you want to sell a bulldozer, show it as a mighty monster being tamed by a human master. Equate buying a new car annually with a renewal of male potency.

Be sure and exploit man's need for a sense of power. Pander to his need for a sense of roots, to his yearning for immortality. In selling life insurance hint that you can continue to dominate lives of legatees long after your death. By such methods one can gear a product and advertising pitch to "built-in sexual overtones." Don't sell cosmetics, sell romance. Don't sell shoes, sell pretty feet. And if you want to sell beer, be sure to use a singing commercial which will appeal to children. They'll sing it all day, at no cost to your, and they can't be turned off like TV or radio.

All of us recognize the important and constructive role played by promotional psychology in our society. Advertising and merchandising are necessary to make our high-g geared high-consumption economy work. Nevertheless, symbol manipulators possibly may have gone too far in their efforts toward obtaining pushbutton control of the human mind.

According to Packard, "Mrs. Middle Majority," who has an in-built limited outlook, does about 80% of all buying for 65% of the population in this nation. She's the prime target of MR. If a TV show is "too good" she will talk about it during the commercial instead of listening to the pitch. Hence, TV mediocrity. Her social strivings are duck-soup for MR. They give her purchases caste or "status" symbolism (make her feel more ritzy).

To be sure, it would be a dreary world if we all had to be rational, right-thinking, non-neurotic people all the time. However, the most serious offense many of the depth manipulators commit, Packard comments, "is that they try to invade the privacy of our minds. It is this right to privacy—either to be rational or irrational—we must strive to protect."

Each reader is invited to write his own last paragraph. Do you feel your wife is being brainwashed by MR? And you, sir?

Skyscrapers Soar over Scene

New York Leads In Air Conditioned Bldgs. Rising or Planned But 6 Other Cities To Get Cooled Office Structures Too

DETROIT — From Manhattan to Mobile, new air conditioned skyscrapers are rising out of the ground or are being planned for construction soon.

When ground is broken in September for a new 38-story aluminum and glass office building at 80 Pine St., it will be the ninth major office building completed, started, or announced in the downtown Manhattan area this year.

The new structure, to be ready for occupancy in the fall of 1959, will be completely air conditioned with a peripheral system providing for individual room control.

1,000 Units Offer Individual Control

Not too far away, a new 26-story office tower is under construction at 123 William St. Here 1,000 "Unitrane" units will provide all floors with individual office control. Completion is scheduled for this fall.

The Raisler Corp., which is making the Williams St. installation, also has a contract to install a \$3,125,000 system in the 20-story building at 100 Church St. Two independent systems, one for the periphery areas and another for the interior zone will provide 3,500 tons of cooling.

At 156 Williams St. is the first air conditioned skyscraper (12 stories) built specifically for insurance company rental. Interior loads are based on an extra heavy occupancy load, explains the Trane Co., which supplied the cooling and heating equipment. It is expected that there will be one person to 90 sq. ft. as compared to the average occupancy of one person to 100 to 120 sq. ft.

Peripheral System Uses Fan-Coil Units

The peripheral air conditioning system employs fan-coil Unitrane units through which run chilled water from a 600-hp. centrifugal type water chiller in the basement. In addition, primary air systems handling 115,000 c.f.m. cool the interior zones.

Uptown, a 3,480-ton air conditioning system is being installed in the new 40-story Tishman Bldg. at 666 Fifth Ave. Chilled water will be provided by two 1,540-ton York centrifugal compressors on the roof and a single 400-ton turbo compressor in the basement. More than 2,700 York high pressure induction window units will cool the building's periphery.

To Have Electronic Air Cleaner System

The new C.I.T. Financial Corp. home office building on Madison Ave. between 59th and 60th Sts., to be opened late this summer will be feature a Trion electronic air cleaning system guaranteed to remove about 90% of all contaminants from the air.

Away from Broadway, the tallest wholly-welded steel building in the United States has just been constructed in Fort Worth, Texas. The 30-story Continental National Bank building, topped

by what is claimed to be the world's largest clock, is cooled by two York "Freon-11" turbo compressors.

They can furnish 1,050 tons of cooling to the 936 induction units in peripheral offices as well as to the central areas. The system uses 100% fresh air, electronically cleaned.

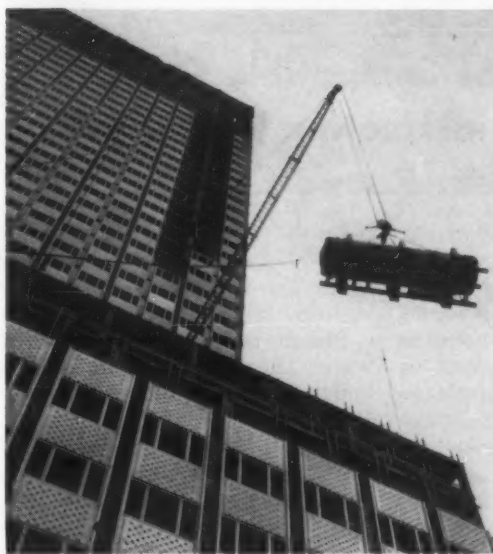
First new major downtown office building in Cleveland in the past 25 years is scheduled to open in September, fully air conditioned. It is the 22-story Illuminating building.

With more than 400,000 sq. ft. in air conditioned floor space, it is the city's third largest public office structure. Featuring a glass and aluminum facade, it has a central core design.

Two Trane hermetic centrifugal "CentraVacs," capable of delivering 2,000 tons of cooling, will supply about 1,500 induction Unitrane air handling units positioned beneath windows on the various floors. Large glass areas and high light load called for an extra capacity system, Trane said.

A second new air conditioned office building for Cleveland—the 20-story International Tower at Superior, E. Ninth and Walnut Sts.—was scheduled to be started this summer by Tishman Realty & Construction Co., Inc.

Tishman is also putting up a 13-story office building on Wilshire Bldg. in Los Angeles and plans five more air conditioned buildings of the same size for



IT'S A long ride up for this 30,000-lb. cooler, part of the air conditioning system presently being installed in the roof-top engine room of New York City's 40-story Tishman Bldg. More than 200,000 lbs. of equipment was hoisted to the roof in two separate operations.

that street. In Buffalo, the firm for the Government Employees Insurance Co. was started this summer in Washington, D. C., and a million-dollar eight-story air conditioned office building will be started in Mobile, Ala. around Dec. 1.

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your
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inventory



ONLY ONE ROOM THERMOSTAT
for all cooling, heating or
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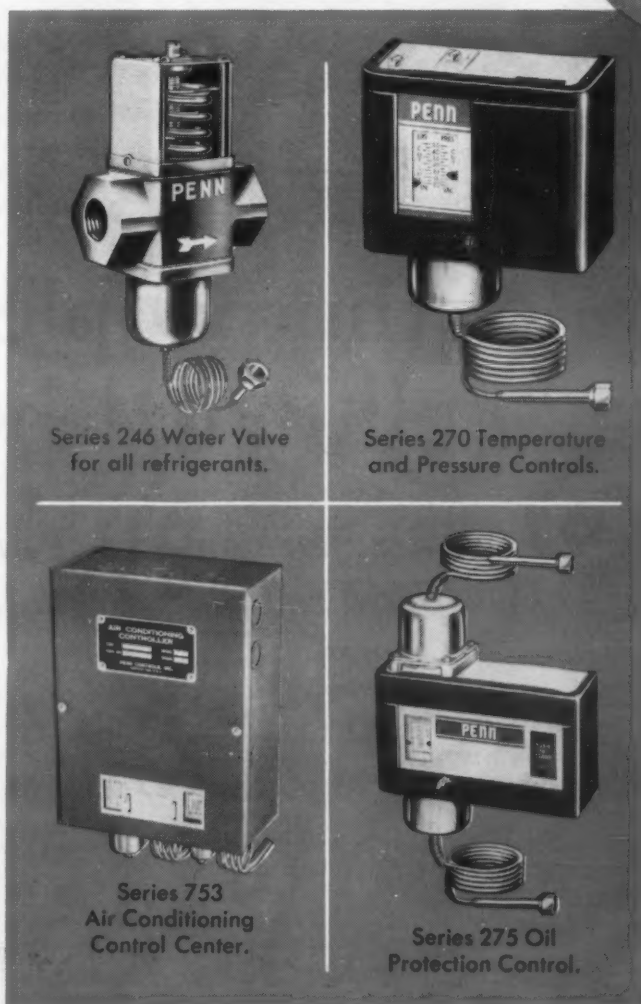
With the Penn RIMSET, various sub-bases are available for cooling, heating or any combination ... and, *one thermostat unit fits all*. Thus, if cooling is added later to a heating installation ... simply change the sub-base and use the same thermostat!

And, the PENN RIMSET is today's easiest-to-read thermostat. When setting temperature, simply dial the rim...the extra large dial face remains stationary. Many other selling advantages are yours with RIMSET...the thermostat with the "Fine Instrument" look, quality and performance!

Use RIMSET and PENN controls for all cooling and heating jobs as well as for commercial refrigeration...a few controls from the complete line are shown, there are many more. Investigate Penn Controls...they "stay on the job" longer!

PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N. Y.



Series 246 Water Valve
for all refrigerants.

Series 270 Temperature
and Pressure Controls.

Series 753
Air Conditioning
Control Center.

Series 275 Oil
Protection Control.

Sees 200,000 Installations In '57

'Wide Choice of Compatible Cooling Added to Liquid Heating Increases Demand for Year-Round Comfort'

PORT WASHINGTON, N. Y. —Greater flexibility of new types of summer cooling equipment in combination with liquid heating systems for the home is responsible for the increase in such installations, declares Franklin Greene, executive director, Better Heating-Cooling Council.

Greene cited as examples four year-round air conditioned houses on Long Island. While each house used a different type of cooling equipment to provide summer comfort, all were heated by forced hot water or steam systems.

"Because of the wide choice of compatible cooling systems now available, and their adaptability to either old or new houses, more homeowners are demanding cooling to make the complete house comfortable the year around," said Greene.

"It's estimated that about 200,000 of these systems will be installed in both old and new homes this year.

Expects Steady Increase

"The number is also expected to increase steadily, regardless of the number of housing starts each year," he added. "The reason is that a great many of these new cooling systems are being installed in existing houses of all types and styles."

Greene pointed out that these four "showcase" homeowners realized the practicability of "whole house" cooling, and, entirely on their own hook, working with contractors, decided to install it in their homes.

The four occupied homes exemplify, Greene said, the different types of systems with the various features that suited the exact needs of the individual house and occupants.

House: Mr. and Mrs. Joseph J. Schwartz, 1 Wensley Rd., Russell Gardens, Great Neck, Long Island

Two methods of air conditioning are used in this Tudor style house. An attic central system sends clean, cool, dehumidified air into each of the bedrooms located on the second floor. The 3-ton air-cooled air conditioning unit connects to ducts that run along the attic floor. A central thermostat regulates the cooling output.

Because of open areas in the first floor and basement of the Schwartz home, self-contained through-the-wall room units were installed to air condition the dining room, kitchen, and remodeled basement.

Through-the-wall units do not take up window space, are indi-

vidually controlled, and provide area cooling as needed. These units are hidden from outside view by trees and shrubs.

Steam heat, with an instant water heater built into the boiler, provides winter comfort. Baseboard radiators and convectors recessed into the wall under the windows maintain steady, even, draftless heat by radiation as well as convection.

Cooling was added to this home under the owner's remodeling plan.

House: Mr. and Mrs. Irving Helsel, 33 Gateway Dr., Great Neck Estates, Long Island

In the Helsel ranch house, both ductwork and the air con-

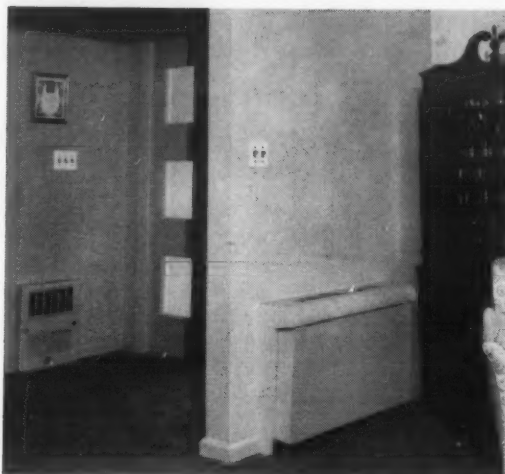
ditioning apparatus (2-ton air-cooled) are placed out of sight in the attic. The ducts carry the conditioned air to each room where it is distributed through ceiling diffusers.

In the living room, two diffusers are installed because of the size of the room.

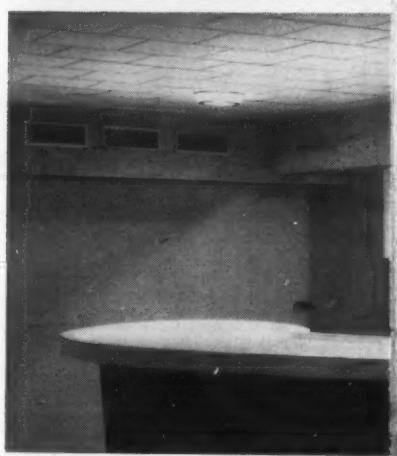
Central overhead and out-of-sight systems of this kind are free of noise and efficient be-

cause both ducts and attic walls and floor are insulated.

Baseboard radiators fit snugly into the walls under the windows. Recessed, they stand about 9 in. high and do not interfere with hanging drapes or



IN AREAS where cooling (or heating) load is lighter, smaller combination heating-cooling convectors are used in Ficarra house. Compare size of unit in entrance hallway with unit in living room.



TWO METHODS of air conditioning are used in Ficarra house. Attic central system sends clean, cool, dehumidified air into bedrooms. Through-the-wall room units are used in living room, kitchen, and basement.



41% of the people in air-conditioned homes read

Reader's Digest reaches more owners of air conditioners—more purchasers of electrical appliances—than any other magazine

IF YOU WANT TO SELL a sound night's sleep to a hardworking male, or a cool day's work to a housewife, you can reach more of them in Reader's Digest than in any other magazine—over 32 million Americans every month. And now a major market study shows why the Digest's alert, well-informed audience offers a unique advertising opportunity to manufacturers in this field.

Although the Digest reaches more owners of air conditioners than any other magazine, it also reaches 28 million people who do not yet have air-conditioned homes.

Why are they such good prospects? Because the

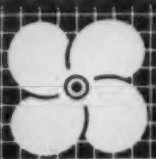
Digest reaches 37% of all Americans who enjoy family incomes of \$7,000 or over—people who own one-third of all electrical appliances and can afford to buy more.

Advertising in Reader's Digest has 168 million opportunities to be seen in a single issue.

Here is why: this new study shows that each reader turns to his copy on 5.3 different days. With 32 million readers, this gives a total of 168 million "reading days" . . . 168 million opportunities for your message to be seen, to be read, and to "sell."

In opportunities to sell, the Digest leads all

FAN BLADES



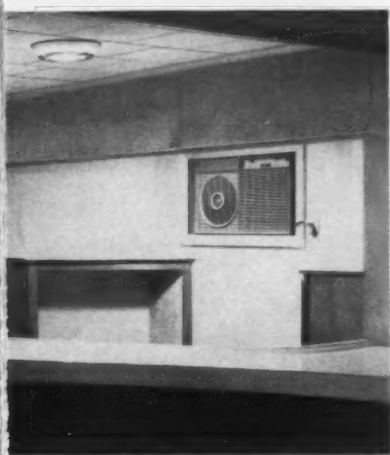
12" - 15" - 16" - 20"
22" - 24" - 30" - 36"
42" - 48" & 54"
Other sizes made to your specifications.

WIRE GUARD, SHELVES, ETC.

C&H Air Conditioning Fan Company, Inc.
1601-1623 DEKALB AVE.
ATLANTA 7, GA.

PRODUCTION QUALITY SINCE 1911

Conditioning



ed in the Schwartz Tudor style house. An unmodified air into each of the second-floor are installed to air condition the dining emodeled basement.

placement of furniture. In the winter, these baseboards, connected by a circuit of piping to a hot water boiler, provide heat, blanketing outside walls.

House: Mr. and Mrs. S. Albert Ficcar, 42 Chestnut St.,



IN THE Helsel ranch house, both ductwork and the air conditioning apparatus (a 2-ton air-cooled unit) are placed in the attic. Ducts carry conditioned air to each room where it is distributed through ceiling diffusers.

Garden City, Long Island

This ranch house is heated and cooled throughout the year with liquid fan-coil units (convectors). In the summer, chilled water is pumped from the air-cooled water chiller in the basement to each room unit. A fan forces the room air over the cold coils and through a unit filter and out into the room. The air is both cooled and dehumidified as it passes over the coils.

Uses Same Piping

In winter, the boiler, located next to the cooling unit in the basement, circulates hot water through the same insulated piping to each room unit. The fan forces clean heated air into the room.

The cooling unit is adaptable for any degree of air conditioning needed. Three 1-ton compressors are contained within the apparatus, and, depending upon the cooling load, any or all of the compressors are automa-

tically set into operation to maintain comfort during the summer. The unit is air-cooled by means of a short duct running to the outside air.

This combination system for year-round comfort is relatively new and is easily installed in the new house because of the flexibility of the finger-thin piping that fits in walls and floors, and the compact efficiency of the convector heating-cooling units.

House: Mr. and Mrs. Charles S. Caruso, 139 Tanners Pond Rd., Garden City, Long Island

This ranch style home has a 3-ton water-cooled packaged air conditioner, located in the rear of the garage. The unit is cooled with disposable city water that is returned to the ground.

Individual Shut-Off Registers Used

Insulated ductwork runs from the unit up and along the floor of the attic, then to each room through ceiling registers. Each register has individual shut-off controls for reducing the cooling in any one room. The system can also be used for recirculating and filtering air without cooling and dehumidification.

A single central return grille in the center hall connects to the attic ductwork.

Winter heat is provided by baseboard radiators recessed into the walls beneath the windows. The hot water boiler contains a built-in water heater for year-round hot water for faucet, bath, and appliances.

Morrison Products Joins ARI

WASHINGTON, D. C.—Morrison Products, Inc., Cleveland, is the newest member of ARI.

The company, which makes blower wheels and component parts for blower assemblies as well as both direct-drive and belt-drive blower assemblies, will be represented in the Institute by Thompson Morrison, its president, with A. Galaba, vice president, engineering and sales, serving as alternate.

Crane Moves Into Larger S. C. Bldg.

COLUMBIA, S. C.—The Crane Co., which distributes air conditioning, plumbing, heating, and industrial supplies, has enlarged its Columbia operations and moved into a large new building at 519 Huger St.

The one-story air conditioning brick building contains a warehouse of 14,000 sq. ft. and showrooms and office space covering 2,200 sq. ft.



Digest readers are open to new ideas—and can afford to invest in new products. They provide the largest magazine audience available for air conditioners and other electrical appliances.

America's favorite magazine

other magazines studied by more than three to one.*

Audience and readership reflect the Digest's greatest power: the faith of its readers. More people read this magazine—and turn to it more often—because people have faith in what they find here. And faith leads to action.

That is why advertisers spent 63% more in Reader's Digest in the first six months of 1957 than in the same months of 1956.

Selling opportunities meant sales for Lennox

Here is what Mr. J. R. Merrill, advertising and production manager of Lennox Industries had to say about air-conditioner advertising in the Digest: "The impact was instantaneous. We are convinced that the Digest produces impressive results because people turn to it in a thoughtful, reading mood."

*Data from: "A Study of Seven Publications" conducted by Alfred Politz Research, Inc.

Now you can take advantage of the Digest's unusual new opportunities—available at a surprisingly low cost per thousand readers. Call us for an analysis of the Digest's coverage of your market in the U.S.—and around the world. In New York, call MUrray Hill 4-7000; in Chicago, WHitehall 4-2544; in Detroit, TRinity 5-9600; in Los Angeles, OLive 3-0380; in San Francisco, EXbrook 2-3057. Or write to: Reader's Digest, 230 Park Ave., New York 17, N. Y.

People have faith in

Reader's Digest

America's largest magazine circulation—
Over 11 million copies sold every month

For more information about products advertised on this page use Information Center, page 18.

SUPER-FLO

UL MASSIVE DEPTH FILTERING!

FILTER-DRIERS

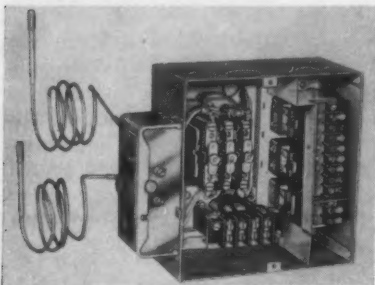
Super-Flo's massive fibreglas depth filter and a molded drying element increase foreign matter, moisture and acid removal. Write for low prices.

AVAILABLE TO THE TRADE THROUGH WHOLESALEERS EVERYWHERE

REMCO INC.
ZELIENOPLE, PA.

What's New

Introduces Master Cooling Controls



KEY NO. G-830

ST. LOUIS—White-Rodgers Co. recently announced the addition of air conditioning master control panels to its line of controls.

The new air conditioning control panels are available in single and two-piece types. The single panel, for use on package cooling units and those having water-cooled condensing units, incorporates both the evaporating sequencing and condenser sections in one enclosure.

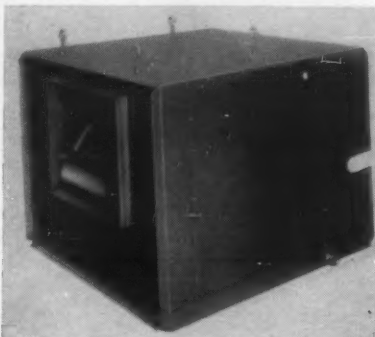
Typhoon Designs Air-Cooled Low Side Line

KEY NO. G-831

BROOKLYN—A line of low side units, designed and engineered especially for economic installation, were announced here recently by Typhoon Air Conditioning Co., Div. of Hupp Corp.

Built to accompany the 2, 3, and 5-hp. "Thrifty-Kool" TAR air-cooled condensing units, the new TEU and TEH low-side units lend themselves to application to existing warm air handling systems, it was explained.

A TAR air-cooled condensing unit, plus a TEU upflow "V-type" evaporator coil, and a furnace blower, yield year-round comfort. Further, a TAR air-cooled condensing unit and a TEH horizontal air flow "flat-type" evaporator coil also provide a 2, 3, or 5-hp. system, when combined with an existing furnace blower, it was added. In case there is not an air handling system available, a new air handling blower, model TAH, may be used to complete a system made



up of a TAR air-cooled condensing unit and a matching TEH horizontal flat-type evaporator coil.

Thrifty-Kool units are designed to facilitate installation and to save space. The TEU V-type evaporator coil measures 19 $\frac{1}{16}$ by 8 by 28 $\frac{1}{16}$ in. and the TEH flat-type evaporator coil measures 30 $\frac{1}{16}$ by 9 $\frac{1}{16}$ by 24 $\frac{1}{16}$ in. The TAH air handling blower section, with casing, measures 30 $\frac{1}{16}$ by 25 $\frac{1}{16}$ by 24 $\frac{1}{16}$ in.

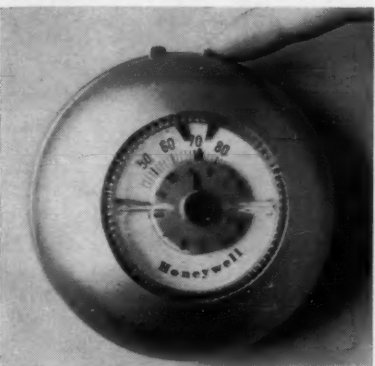
Offers Residential Switch-Back Thermostat

KEY NO. G-832

MINNEAPOLIS—Newest member of Minneapolis-Honeywell Regulator Co.'s growing family of round thermostats is a residential switch-back model, the company announced.

Called a "Day-Nite" round thermostat (designated T832), it provides for a simple adjustment of a spring-wound timer to assure lowered temperature with automatic heat pickup at any desired hour.

New fingertip adjustment tabs allow the homeowner to easily select the temperature he wants. Provision is made for switch-back



of heat in quarter-hour increments up to 10 hours, it was added.

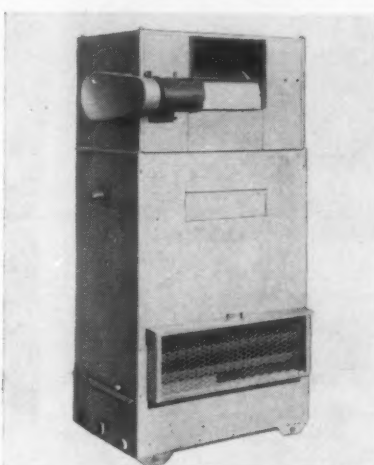
Adds Vertical Induced Draft Cooling Tower

KEY NO. G-833

INDEPENDENCE, Mo.—Super-quiet operation is featured on all series V, vertical induced draft, cooling towers built by the Dover Mfg. Co. here, the firm claims.

Towers use a centrifugal blower instead of a fan, eliminating noise problems, and allowing the unit to be placed near workers, without disturbance, it was noted.

Available in sizes from 5 to 100 tons, towers are designed for installation where space is a factor; they can be used either inside or outside a building. Air intake and outlet are on the same side of the tower (in sizes below 50 tons) permitting the unit to be placed flush to the wall.

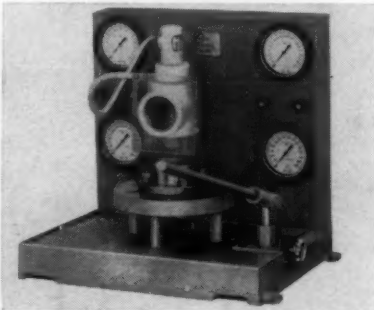


Hydraulic, Pneumatic Test Stand Designed

KEY NO. G-834

PALISADES PARK, N. J.—A new, bench-type hydraulic and pneumatic test stand called "Porta-Tester" has been developed by Farris Engineering Corp. here for use wherever pressure equipment must be tested without an external source of power.

Unit is completely self-contained, low in cost and portable. The Farris "Porta-Tester" is de-



signed for testing safety and relief valves, globe, gate, plug, and other valves, pressure vessels, and pipe.

SAFETY FIRST

last and always

with **anco** condenser cleaner

Anco condenser cleaner

is completely safe to use. It won't burn workmen's skin and it is harmless to metals. No corrosive or irritating fumes at all. If it is accidentally spilled on tools or machinery, no harm is done. Yet ANCO Condenser Cleaner does a fast effective job of removing the heaviest scale while equipment is operating.

Simple, economical to use

Scale and rust are removed quickly and easily with ANCO Condenser Cleaner. You simply dissolve the Cleaner in several gallons of water and add it to the operating system. You can add the formula, in dry form, to the sump while the system is in operation. Next day the tubes are clean and the condenser is operating at peak efficiency. Just as important, it costs less to use than many other brands.

Don't pay more when you can't buy a better condenser cleaner. Buy ANCO Condenser Cleaner and watch your profits climb on every cleaning job.



specialists in making water behave

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Chemical Company, Inc.

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solve the space problem...

SPACE
XP + XD = PROFIT

Warren's XP and XD refrigerated shelves for produce and dairy products solve space problems and increase profits.



Warren Refrigerators

P. O. Box 1436, Atlanta 1, Ga.

ARE you in need of a "just right" man to fill a slot in your organization—the man you are looking for will be reading the

NEWS' CLASSIFIED ADS

(See Page 30)

Has Glass Baseboard Radiant Heater

KEY NO. G-835

QUEENS VILLAGE, N. Y.—A new slim design baseboard glass radiant heater that extends 1 $\frac{1}{4}$ in., without being recessed, has been perfected by Berko Mfg. Corp.

This baseboard system includes several innovations designed to increase efficiency, the most important of which is a new baseboard level thermostat which can control up to seven 650-watt heater sections, and a duplex electrical outlet section.



MIGHTY MITE
THERMAL PROTECTORS
FOR MOTOR OVERLOAD PROTECTION
MECHANICAL INDUSTRIES PRODUCTION COMPANY
223 ASH STREET • AKRON, OHIO

Information Center

For more information on What's New products, current literature and catalogs available, equipment advertised in AIR CONDITIONING & REFRIGERATION NEWS use Key Numbers where designated or specify products advertised and we'll see that you receive this information promptly.

Products Adverted
(list name, page, and issue date)

What's New or Current Literature Available

Key No.	Key No.
Key No.	Key No.
Key No.	Key No.
Key No.	Key No.
Key No.	Key No.

Name Title
(Please Print)

Company

Street

City Zone State

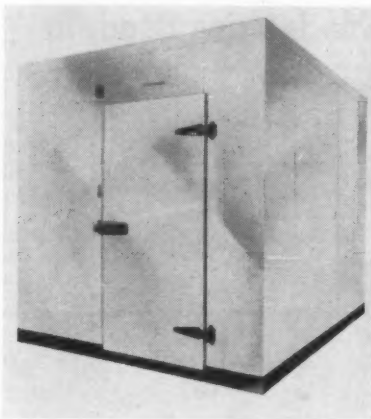
Type of Business

MAIL THIS FORM TO

AIR CONDITIONING & REFRIGERATION NEWS
Readers Service Dept.

450 W. FORT ST.

DETROIT 26, MICHIGAN



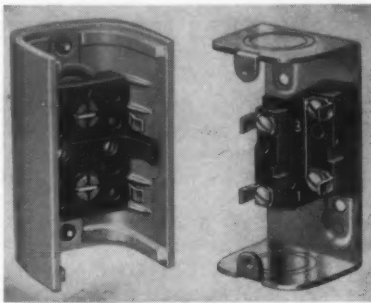
Sectional Cooler Has Adjustable Shelves

—KEY NO. G-837—

ST. LOUIS—A new line of sectional coolers which is claimed to make better use of backroom space has been developed by the Hussman Refrigerator Co.

New coolers are of two types, the KN for normal-temperature storage and the KL for low-temperature storage of frozen foods.

Steel shelving and steel meat rails, completely adjustable from floor to ceiling enable retailer to use every bit of storage space.



Wrap-Around Cover Protects Switches

—KEY NO. G-8310—

MILWAUKEE—A new line of standard-duty pushbuttons and selector switches with a molded wrap-around cover which contains and protects the contact mechanism, was recently announced by the Allen-Bradley Co. here.

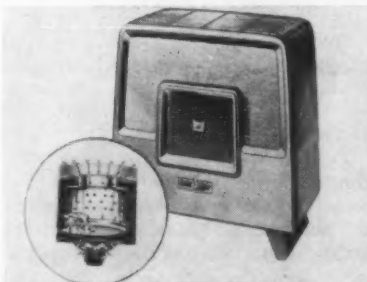
Contact mechanism of the new standard duty pushbuttons is contained and protected in the wrap-around cover. Removing the cover exposes the wiring terminals.

Space Heater Said To Give On-the-Floor Heat

—KEY NO. G-8311—

ALBERT LEA, Minn.—A new oil space heater that provides a combination of features and automatic controls ordinarily found only in central heating systems, has been announced by the Queen Stove Works, Inc.

The new "Superflame 11-CDH" custom deluxe heater is specifically designed to provide effective circulation with on-the-floor heat.

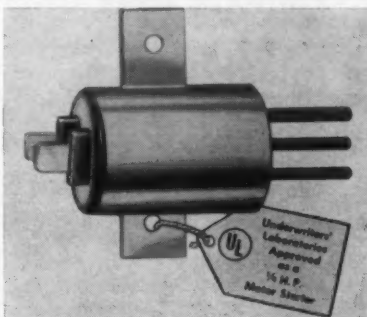


Plunger Actuates Electromagnetic Switch

—KEY NO. G-8312—

CHICAGO—The Guardian Electric Mfg. Co.'s "Reloid," an electromagnetic switch actuated by a plunger, is now available in a special version carrying Underwriters' Laboratories approval marking as a 1/4 hp. industrial motor starter.

Reloid is totally enclosed in a metal case to resist impacts, dust, and moisture. Three contact leads, plugged with molded bakelite, are equipped with A.M.P. terminals.



Starting Guide Aids Masonry Drilling

—KEY NO. G-8313—

SAN CLEMENTE, Calif. — Tough masonry drilling jobs are claimed to be made easier by using Tilden "Rotary Konkrete Kore" drills with the masonry drill starting guide, which provides a means of precision locating and starting hole, said Tilden Tool Mfg. Co.

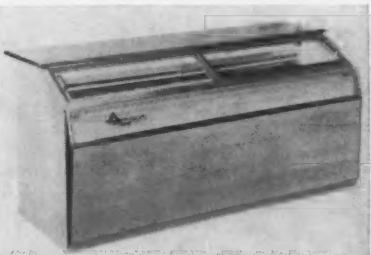


Offers Heavy-Duty Wall Heater

—KEY NO. G-838—

LOS ANGELES — Thermador Electrical Mfg. Co. has introduced the new "NW" series electric heater.

These individual, heavy-duty wall insert electric fan type heaters draw cool air into the heater, then force this cool air through a heating chamber and distribute warmed air downward to circulate throughout the "living zone" of the room. Heavy-duty single-phase induction motor is located in the cold air intake and operates at room temperature to insure long, dependable service and most efficient operation.



Merchandiser Serves As Check-Out Stand

—KEY NO. G-839—

ST. LOUIS—The Anheuser-Busch Refrigerated Cabinet Div. announces the availability of its model AVC-7 "Angle-Vision Countertop" merchandiser.

The 23-in. wide, 84-in. long durable gray surfaced countertop serves as check-out counter, and the angle-vision cabinet exposes the shopper to the impulse of buying ice cream or frozen foods.

SELL THE CARTON THAT SELLS YOU

Selling yourself to your customers . . . building up your position in America's economic system is exactly what you accomplish every time you sell a carton of Wolverine Roll-O-Tube. Each Roll-O-Tube carton tells your customers to "BUY FROM YOUR WHOLESALER"—a phrase which, by the way, is repeated millions of times each year in Wolverine's national advertising campaigns.

Wolverine Roll-O-Tube, however, helps you in still other ways. Because it was designed with increased installation efficiency in mind, Wolverine Roll-O-Tube helps your customers do a better job—brings them back for more every time they need copper water tube or copper refrigeration tube. Roll-O-Tube can be rolled like a hoop . . . is easy to carry . . . can be used as a work-saving reel . . . and acts as a perfect storage spot for unused tube.

Combine these points and you have, in Wolverine Roll-O-Tube, a terrific sales force. Use it to help increase your sales of copper water tube.

CALUMET & HECLA, INC.
CALUMET DIVISION
WOLVERINE TUBE DIVISION
FOREST INDUSTRIES DIVISION
GOODMAN LUMBER COMPANY
CALUMET & HECLA
OF CANADA LIMITED
CANADA VULCANIZER AND
EQUIPMENT COMPANY LIMITED

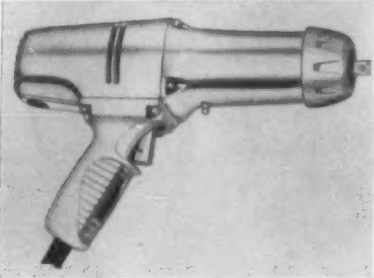
WOLVERINE TUBE

Division of Calumet & Hecla, Inc.
1413 CENTRAL AVE., DETROIT 9, MICHIGAN

Manufacturers of Quality-Controlled Tubing and Extruded Aluminum Shapes

PLANTS IN DETROIT, MICHIGAN AND DECATUR, ALABAMA. SALES OFFICES IN PRINCIPAL CITIES.

EXPORT DEPARTMENT, 13 EAST 40TH STREET, NEW YORK 16, NEW YORK



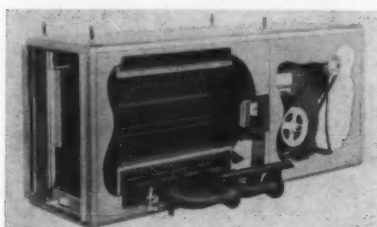
Winter Air Conditioner 'Uses No Floor Space'

—KEY NO. G-8315—

GARWOOD, N. J.—A gas-fired winter air conditioner which uses no floor space has been developed by Thatcher Furnace Co., it was announced.

Designated "GS," the new horizontal unit can be installed in under-house crawl spaces, attics, or suspended from basement or utility room ceilings.

When placed in attics or crawl spaces it requires only short duct



runs, thereby combining low installation costs with efficient performance, the company said.

Platform Truck Offers Precise Load Placing

—KEY NO. G-8316—

PORTLAND, Ore.—The completely new "Freighter" platform truck recently announced by Hyster Co. is designed to transport loads of up to 4,000 lbs. safely and rapidly through terminals.

Powered by Wisconsin's industrial model AEN engine, unit has fully automatic drive, which results in smooth power flow and excellent "inching" qualities for precise load positioning, the company claims.

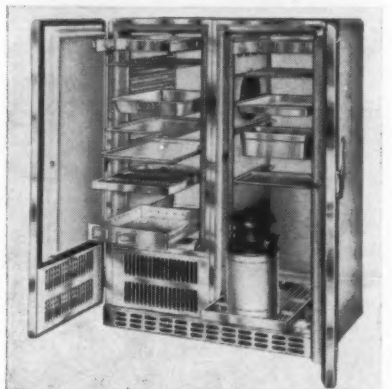


Produces Interchangeable Interior Reach-In

—KEY NO. G-8317—

PLYMOUTH MEETING, Pa.—New Vimco model RS-40-S stainless steel reach-in refrigerator features interchangeable interiors that will take any combination of bakers trays, stationary or pull-out meat rails, stationary or pull-out shelves, refrigerated drawers, storage and steam table pans, or cafeteria trays, Victory Metal Mfg. Co. announced.

Capacity is 40 cu. ft. and all interior corners are coved, ground, welded, and polished. Unit is available in aluminum and enamel.



Impact Wrench Has 'Power Core'

—KEY NO. G-8314—

CHICAGO — The patented "Power Core" of the new "Pet" impact wrench combines an improved product with economy for the user, the producer, Portable Electric Tools, Inc., said.

Power Core is a simple, strong neoprene-steel energy accumulator, which replaces a complex, delicate maze of close tolerance thrust and ball bearings, springs, and cams.

In addition, the Power Core is claimed to give several performance advantages.

Offers Refrigerant Cap

—KEY NO. G-8318—

CHICAGO — Now available are Wolf-Linde refrigerant seal cap valves with screw ends, flanges, and flanged brass connectors offered in both globe and angle designs by Dersch, Gesswein & Neuert, Inc.

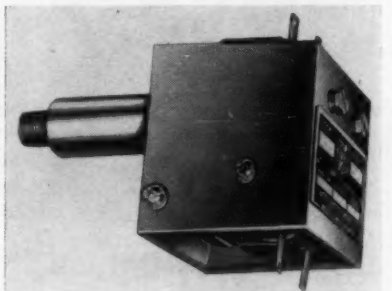


Develops Small Pressure Snubbers

—KEY NO. G-8319—

NEW YORK CITY — To meet the increasing demand for small pressure snubbers the Chemquip Co. recently made available a unit with 1/4 in. NPT male and female pipe connections. Previously Chemquip snubbers were available with 1/2 in. NPT and 3/4 in. NPT connections.

New 1/4 in. NPT pressure snubbers are fabricated of brass, aluminum, or stainless steel for maximum corrosion resistance; and in three porosities, for oil, water, and gases, including steam. Intermediate porosities are available on special order, for use with a wide variety of pressure transmitting media, it was added.



Dual Switch Pressure Control Announced

—KEY NO. G-8320—

WATERTOWN, Mass.—The development of a new dual switch pressure control, the J75A, has been announced by United Electric Controls Co.

J75A contains two completely separate switches that operate independently of each other for controlling two independent circuits. It is said to offer extreme flexibility of switch arrangement.

Seven models are offered in a variety of adjustable ranges between 0 and 250 p.s.i. limits, and maximum pressures up to 350 p.s.i.



He wouldn't be guilty of leaving fingerprints!

The hands that go into these goatskin gloves belong to a skilled worker in General Electric's new Tyler, Texas plant where whole-house air conditioning equipment is built.

The reason for the goatskin gloves? Even the barely perceptible perspiration that forms on human fingers would have an adverse effect on the compressors which are the heart of General Electric central system air conditioning. In any necessary handling before the compressor is factory-sealed for protection, goatskin gloves are worn.

This is an extra step we take—one of the many ways we safeguard the quality of our

products. And this quality control, standard practice at Tyler, Texas, is far-reaching in its effects. Wherever you may install General Electric Home Heating and Cooling systems it is your assurance of the kind of user satisfaction that means customer good will and continued profits. General Electric Home Heating and Cooling Dept., Tyler, Texas.

Progress Is Our Most Important Product

GENERAL  ELECTRIC

NOLIN

OPEN VIEW CASES



• FROZEN FOOD

• VEGETABLE

• DAIRY

• MEAT

NOLIN

MANUFACTURING COMPANY
1400 LLOYD ST. PH. 3-4454
MONTGOMERY, ALABAMA

Starting-Current-Limiter

Use Based on Problem of Maximum Permissible Starting Current 'Bump'

NEW YORK CITY—A new starting-current-limiter for air conditioning and refrigeration system motors has been developed by Schrack Electric Sales Corp. here, and is undergoing tests by power companies and manufacturers.

The use of the current limiter is based upon the problem of the maximum admissible starting current "bump," as set by the power company, being lower

than the rated locked rotor current of the motor used in the cooling system. The device is designed to reduce this starting "bump" or to split it into two parts which would cause no line voltage fluctuations.

Three major elements are used in the construction of the limiter, which can be placed in the control box:

1. An iron core choke as a limiter, taking in consideration the fact that the motor impedance is highly inductive during the starting period, and on the theory that an inductive limiter is more effective than an ohmic limiter of the same impedance.

2. A bimetal strip used as a timer. Its bending action caused by a heating current of known value is a measure of time.

3. A mercury tube switch actuated by a tilting mercury tube. Its contacts are working in vacuum and therefore, no contact troubles are likely.

Fig. 1 shows the arrangement of the three elements. The limiting choke and the bimetal strip are connected in series and arranged in one of the two line wires feeding the air conditioner or refrigeration system (for three-phase motors a similar three-phase setup is possible).

The starting current, limited by the choke to a value acceptable to the utility company,

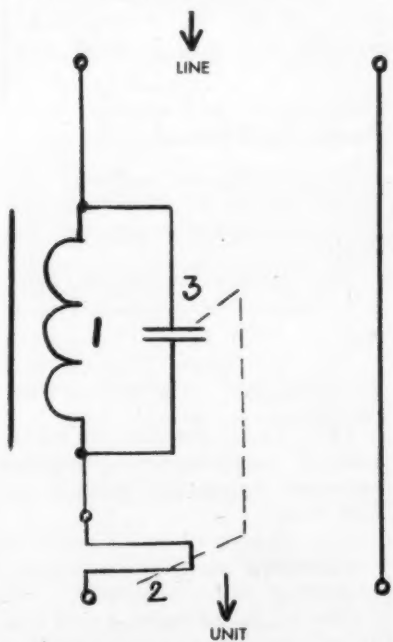


FIG. 1—Arrangement of three elements of starting-current-limiter: 1. Choke 2. Bimetal Strip 3. Mercury Tube n.o. Contact.

flows through the bimetal which quickly bends, thereby closing the mercury tube switch connected in parallel to the choke. This means that the limiting action of the choke is short circuited to feed the equipment with full line power during normal running conditions.

Schrack officials say that it is easy to design the bimetal actuated mercury tube switch in such a way as to maintain its closed condition also during the bimetal bending which corresponds to normal running current. After the deenergization of the motor by means of pressure switches and thermostats, the bimetal cools off and bends back, thus making the limiter regain its original condition with open mercury contacts.

They also say that such an arrangement requiring a few seconds to regain its operability should be acceptable for refrigeration and air conditioning equipment.

Plastics Engineers Group To Discuss Polyethylenes In Cleveland Oct. 17

GREENWICH, Conn.—A regional technical conference on the major processors at the "Polyethylenes—Properties and Uses" will be sponsored by the Cleveland-Akron Section, Society of Plastics Engineers, at the Hotel Carter, Cleveland, on Thursday, Oct. 17.

Representatives of material suppliers will present papers comparing the properties of the various density polyethylenes at the morning session of the conference. New uses for the poly-

ethylenes will be described by the major processors at the afternoon session. Recent developments in this new field will be comprehensively covered.

Further information may be obtained from E. J. Haskins at Zenith Plastics Co., 1009 Rockwell Ave., Cleveland 14, Ohio. The registration fee, which includes luncheon and pre-prints of papers, will be \$9 for advance reservation or \$10 at the conference.

M-H Builds Automation, Missile Valve Mfg. Plant

FORT WASHINGTON, Pa.—A new \$1.5-million plant for the production of industrial valves for automation and the nation's expanding missile program was opened here recently by Minneapolis-Honeywell Regulator Co.

The 120,000-sq. ft. plant pro-

vides manufacturing, research and development, sales, and administrative facilities for Honeywell's Valve Div., oldest of the company's units. The division produces hydraulic, pneumatic, and electric valves for use in automatic control.

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Latent Heat Defrosts New 'L' Thermobank (1)

Nussbaum Explains Advantages over Older 'B' Thermobank

By Otto J. Nussbaum, Chief Engineer, Kramer Trenton Co.

Near the end of World War II, Kramer Trenton Co. introduced the "Thermobank" system which provided for the first time a completely automatic unit cooler for temperatures below 32°, without the use of extraneous sources of heat for defrosting.

Based on Reverse Cycle Principle

The Thermobank system is based on the reverse cycle principle. It is essentially a hot-gas defrost system but with a novel heat source for defrost, called a re-evaporator. Heat ordinarily discarded at the condenser is continually stored in the Thermobank and used to evaporate refrigerant liquid condensed in

the evaporator coil during defrost.

The three main reasons for the success of the Thermobank were:

3 Reasons for Success

1. Substantial operating economy resulting from the utilization of waste heat of compression rather than costly extraneous defrost heat sources.

2. The introduction of the re-evaporator as a heat source, located outside of the refrigerator, permits an extremely compact unit cooler with a minimum of piping, valving, or wiring.

3. The hot-gas method was made fully automatic and dependable by the addition of the

re-evaporator which insures complete vaporization of liquid refrigerant returned during defrost.

Ten years after its introduction, the original Thermobank system was still a satisfactory method, if it was properly planned and installed under favorable conditions.

Parallel developments in low temperature compressor design and field experience prompted further laboratory and field work which resulted in new basic developments.

The result of these developments is the new "L" (latent) Thermobank system.

The development of the latent heat re-evaporator as a heat source for defrost provides a completely dependable low tem-

A new "L" type "Thermobank" hot-gas defrost system for low temperature refrigeration utilizes the latent heat of solidification in addition to sensible heat for defrosting.

Otto Nussbaum, chief engineer of the Kramer Trenton Co., which makes the Thermobank, has been telling engineers around the nation about it for the past several months. Most recently he presented a paper on it before the American Society of Refrigerating Engineers in Miami Beach, Fla.

Nussbaum told the engineers that the latent re-evaporator overcomes a number of problems inherent in the older "B" type Thermobank by changing the state of the heat source water from liquid to solid. Thus it is possible, he says, to abstract 2,000 B.t.u. by cooling and freezing only 1.5 gals. of water from 45° F. to 32° F. To get the same amount of heat, it was formerly necessary to cool 4 gals. of 120° F. water to 60° F.

Because the heat-hold temperature level can now be lowered to 45° F., the threat of high suction superheat is eliminated. The necessary heat-hold volume is cut in less than half.

Here, leaving out the complicated formulas dear to the engineer's heart, Nussbaum describes the features of the "L" Thermobank, its principles of operation, its construction, and how it solves cold weather problems.

perature refrigeration method which offers the following features.

Features Offered

- (1) Increased system efficiency due to rapid defrost and minimum interruption for defrost.
 - (2) Defrost operation without compressor overload and at normal back pressure.
 - (3) Increased heat source capacity with reduced dimensions.
 - (4) Rapid defrost due to increased temperature difference between defrosting refrigerant and frost.
 - (5) Complete re-evaporation—therefore positive compressor protection from floodback.
 - (6) Normal suction and discharge superheat during the refrigeration cycle.
 - (7) Prevention of oil foaming and pumping after defrost and elimination of oil return problems.
 - (8) Automatically adjusted defrosting frequency, depending on frost coat thickness.
 - (9) Independence from ambient temperature and absence of cold weather problems.
 - (10) Reduced hot-gas line and valve sizes.
 - (11) Applicability to very low and ultra-low temperatures.
- To understand the principle and operation of the "L" Thermobank, let's look for a moment at the "B" Thermobank (Fig. 1).

It employs a refrigerant trap surrounded by a body of warm water, or heat-hold, which is always maintained at a controlled temperature by normally wasted condenser heat from the refrigeration system.

During the normal refrigeration cycle, the hot gas from the compressor discharge first passes through a heating coil located in the heat-hold, deposits or "banks" some of its heat there and then proceeds to the condenser in the usual order.

The temperature of the heat-hold must be high enough for complete re-evaporation and rapid defrost.

(Continued on next page)

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Thermobank Unit--

(Continued from preceding page)

Since the liquid trap remains in the suction line during normal operation, the warm heat-hold may add some superheat to the suction gas.

Minimizing Superheat

To minimize this effect, the liquid trap is constructed so that one end of it extends out of the heat-hold, so that the suction stream by-passes the warm heat-hold during normal refrigeration.

It is evident that this method does not depend on the air temperature surrounding the suction line nor is it likely to permit any floodback of liquid to the compressor.

Its comparatively high heat hold provides a high rate of heat transfer. It also raises the pressure of the re-evaporating refrigerant, which is the compressor suction pressure during defrost, so as to increase compressor capacity and accelerate defrost.

During the past 10 years, design trends in low temperature conditioning units were toward increased horsepower economy.

Motor Overload Due To Raised Suction Pressures

As a result low temperature condensing units as fabricated today can not operate at raised suction pressures without motor overload.

This fact, combined with the experience of thousands of installations, prompted the new development described here.

In Fig. 1, heat is abstracted from the heat-hold in the form of sensible heat only.

For example, to melt 10 lbs. of frost, 2,000 B.t.u. must be delivered to re-evaporating refrigerant; for this purpose 4 gals. of 120° water were cooled to +60° during the defrost operation.

Between defrosts, the water was restored to +120° by the heating coil described above.

Due to the presence of the heat-hold at a temperature of +120° in close proximity to the suction line, it was sometimes difficult to prevent excessive suction vapor superheating during the refrigeration cycle.

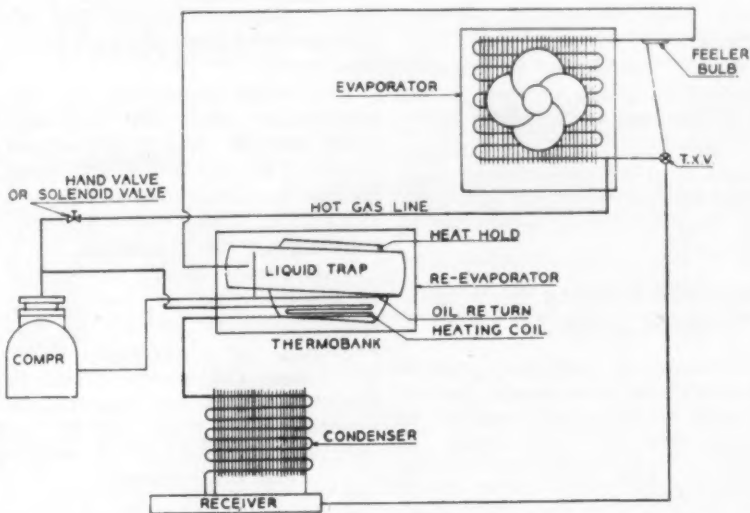


FIG. 1—Heat is abstracted from the heat-hold in the form of sensible heat only.

A reduction of the heat-hold temperature below 120° was impractical because it would result in reduced heat transfer.

The latent re-evaporator available in addition to sensible heat.

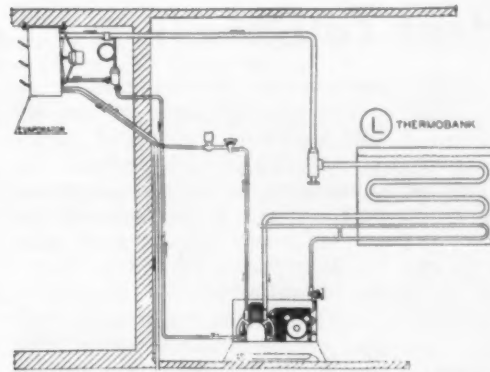


FIG. 2—Latent re-evaporator overcomes reduced heat transfer problems by changing the state of the heat source water from liquid to solid.

It is then possible to abstract 2,000 B.t.u. by cooling and freezing only 1.5 gals. of water from +45° F. to +32° F.

Therefore, the heat-hold temperature level can now be lowered to 45° F., eliminating the threat of high suction superheat. The necessary heat-hold volume is less than half of that used in Fig. 1.

The refrigerant re-evaporates at a controlled temperature of +10°, which is maintained by a pressure regulating valve or holdback valve at the inlet of the re-evaporator.

(Continued on next page)

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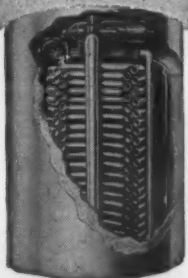
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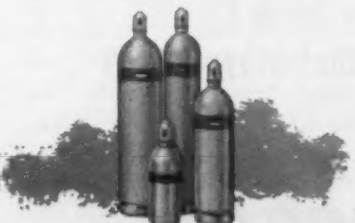
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Uses Latent Heat To Defrost--

(Continued from preceding page)

What Valve Does

In addition to maintaining the necessary temperature difference between heat-hold and re-evaporating refrigerant, the holdback valve also controls the suction pressure so that it is always within normal compressor loading conditions both during defrost and after defrost.

Its throttling action insures a high discharge gas temperature and a high condensing pressure in the evaporator, intensifying heat transfer to the frost.

The evaporator pressure rapidly returns to normal before refrigeration is resumed, avoiding heavy pulldown loads at the start of the normal cycle.

The system operates at its design suction and discharge pressures promptly after defrost so that there is a minimum of

interruption in refrigeration.

The re-evaporator of the latent heat-hold consists of parallel serpentine coils which are submerged in water, spaced so that separated cylinders of ice can be frozen around each tube for 30 minutes without contacting the adjoining ice cylinder.

All serpentines are continuous with no joints under water. The heat-hold tank is of rectangular shape which yields to deformation better than a cylindrical shell. The high refrigerant velocity in the top-fed re-evaporator prevents oil trapping and the need for oil return lines.

The heat-hold includes an air cushion to absorb changes in water volume during freezing and melting. To provide a safety factor, the heat source volume is greater than theoretically required. Thus the water will never freeze completely and no

significant volumetric changes can take place.

Little insulation is required since heat gains or heat losses from the heat-bank will be small.

Again, the heat-hold utilizes waste heat of compression, supplied by the discharge gas heating coil which is immersed in the water.

Required Heating Surface Small

Because a low-heat source temperature is adequate, the required heating coil surface is small and its heat input is controlled by means of a built-in by-pass.

As the heat bank temperature rises, the discharge gas is bypassed to the condenser without contacting the heat bank.

Therefore, the heat bank temperature will not rise significantly above the ambient temperature; there can be no serious superheating of any suction

vapor passing through the re-evaporator during the refrigeration cycle.

For small capacities, the re-evaporator and its holdback valve are in the circuit at all times (Fig. 2). Since the heat source is cool, superheating of the suction vapor above ambient temperature is prevented.

This series circuit is limited to small capacities, mainly because holdback valves are not available for capacities above 1½ tons. The series circuit is further limited to evaporating temperatures from +15° to -40° F.

(To Be Continued)

Opens Branch Outlet

NEW YORK CITY—Abco Refrigeration Supply Co. here has opened a branch office and warehouse at 240 Old Country Rd., Hicksville, L. I., George Moncher, a partner in the firm, announced.

'A Long Way Off'

Widespread Use of Atom In Preservation of Perishables So Termed

WASHINGTON, D. C.—Widespread commercial use of atomic energy in the preservation of perishable foods is "a long way off," according to Dr. H. C. Diehl, director of The Refrigeration Research Foundation, Colorado Springs, Colo.

Dr. Diehl said:

"Although continual scientific progress is being made on the important subject of irradiated foods, the widespread commercial usage of atomic energy in preserving perishable foods is still a long way off."

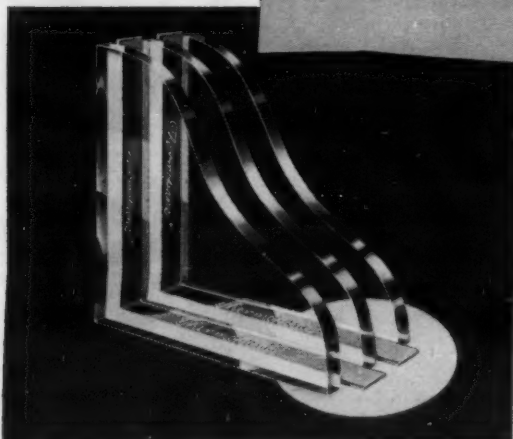
Dr. Diehl said further that there has been no marked change in the attitude of scientists, food technologists, and manufacturing firms since the 1956 "canvass" was made by TRRF and the results of which were not optimistic for the commercial use of irradiated foods in the near future.

"The scientific progress that is being made is highly significant," stated Dr. Diehl, "but the economic and engineering aspects of these advances still remain to be evaluated and developed in an industrial sense, to say nothing of the public health aspects of eating irradiated foods, which may not, however, have any adverse significance for the ultimate consumer."

"TRRF says again it is not likely that irradiation in any foreseeable future will eliminate the need for refrigeration of all or many commodities. In fact, when pasteurizing doses are used to control surface bacterial growth, as seems much more feasible at present, the product then requires subsequent refrigeration at cooler level."

"Some commodities," Dr. Diehl concluded, "may acquire certain properties or have certain characteristics preserved by irradiation which, perhaps together with the product's value, will justify commercial irradiation in the future."

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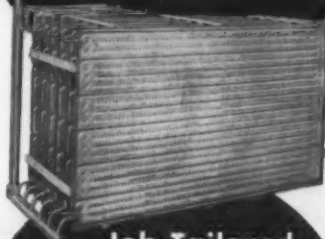
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Refrigeration Problems And Their Solution

(As Written by Paul Reed)

The late Paul Reed, one of the refrigeration industry's most respected writers and teachers, wrote a column on "Refrigeration Problems and Their Solution" which was published regularly in AIR CONDITIONING & REFRIGERATION NEWS for more than 15 years.

Readers throughout the years have hailed this written material as some of the most practical and helpful that has ever been published. Fortunately, the author had an opportunity to revise some of this material and the NEWS is currently re-publishing it.

Estimating Correct Head Pressure (2)

HEAD PRESSURE WITH EVAPORATOR TEMPERATURES AT 'MINIMUMS'

Now let us examine what happens when the evaporator temperature is less than the maximums of 5°, 25°, and 45°. Take the medium-temperature unit for example. The maximum average evaporator temperature on which it should be used is 25°, but suppose that it is operating on 0° evaporator.

We could call this the "minimum" evaporator temperature for a medium-temperature unit. If the evaporator was to be less than 0°, most certainly a low-temperature unit would be used.

But on a 0° evaporator, the medium-temperature unit would be operating at about 55 to 60% of its B.t.u. capacity when operating on a 25° evaporator. So the load would be off almost one half, so the head pressure would be down very considerably.

Just how much it would be down would depend on the design of the condenser, etc., but instead of the temperature difference between the condenser and the room air being the maximum 35°, it would be only about 20°.

In a 75° room, instead of the condensing temperature being 75° + 35° or 110°, it would be 75° + 20° or 95°. If the refrigerant were Refrigerant-12, the head pressure would be 108 p.s.i.g., corresponding to 95°, instead of 136 p.s.i.g., corresponding to 110°.

So the temperature rise of the condenser, when the unit is operating on about 25° less than the maximum evaporator temperature with which it should be used, is 20° instead of 35°. Moreover, this is true of the low-temperature unit and of the high-temperature unit.

If the low-temperature unit is operating on a -20° evaporator (25° below the maximum 5°) the condenser temperature rise will be about 20° instead of 35°. Therefore, in the 75° room the head pressure will be about 108 p.s.i.g. for Refrigerant-12, just as it was for the medium-temperature unit operating in a 0° evaporator.

This is also true of the high-temperature unit. Operating on a 75° + 20° or 95°, and the head pressure 108 p.s.i.g., the same as for the medium-temperature unit

20° evaporator (the maximum 45° less 25°) and in a 75° room, the condensing temperature will be on a 0° evaporator and a low-temperature unit on -20° evaporator.

But suppose the evaporator temperature is just a little, say 5°, below the maximum. For the three types of units, the evaporator temperatures then would be 0°, 20°, and 40° instead of the maxi-

Type of Unit	Temperatures to Add to Room Temperatures to Get Condensing Temperatures					
	20°	22½°	25°	27½°	30°	35°
Low temperature	-20°	-15°	-10°	-5°	0°	5°
Medium temperature ...	0°	5°	10°	15°	20°	25°
High temperature	20°	25°	30°	35°	40°	45°

TABLE 1—Shows on the first line, the temperature difference between the air-cooled condenser and room temperature, for the evaporator temperatures shown just below for the three types of units.

mums 5°, 25°, and 45°. Then the rise in condenser temperature would be about 30° instead of 35°.

Saying it another way; the condensing temperature would be 30° above room temperature. So in a 75° room, with Refrigerant-12 units with 0°, 20°, and 40° evaporators, respectively, the condensing temperature would be 75° + 30° or 105° and the head pressure 126 p.s.i.g. corresponding to 105°.

After the first 5° drop in evaporator temperature, the condensing temperature will probably drop a little more slowly. So if the evaporator temperature is off about 10°, that is, 10° below the maximums of 5°, 25°, or 45°, the condensing temperature will probably drop

only about 7½°, so you would use 27½° instead of 30° or 35° as above described.

The same is true of the next 5° drop in evaporator temperature and in fact, succeeding drops of 5° in evaporator temperature. For each of those 5° drops, take off about 2½° from the condensing temperature.

Table 1 shows on the first line, the temperature difference between the air-cooled condenser and room temperature, for the evaporator temperatures shown just below for the three types of units.

SUMMARY

1. Determine the room temperature, or better, the temperature

of the air going into the condenser.

2. Find if the unit is the low, medium, or high-temperature type.

3. Determine the evaporator temperature. Unless there is excessive pressure drop, this can be determined by looking up the suction pressure in the temperature-pressure table for the refrigerant being used, and then finding the temperature corresponding to the suction pressure.

4. From Table 1 pick out the temperature to add to the room temperature.

5. Add this to the room temperature. This gives you the condensing temperature.

6. Look up this condensing temperature in the refrigerant table and find the corresponding pressure. This is the approximate head pressure that your gauge—if it is accurate—should show.

This method is not exact, but it will give very close answers. If properly computed, head pressures determined by this method are about as close as an ordinary high-pressure gauge can be accurately read. Care must, of course, be used in using accurate thermometers and reading them accurately.

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Law Requires Revamping of Sales Contracts

SPRINGFIELD, Ill.—Under a new law recently passed by Illinois' Congress, dealers must revamp their sales contracts before Jan. 1, 1958, so they contain the following eight provisions:

(1) Cash sale price; (2) time sale price (cash sale price amount of down payment; (3) difference between 1 and 2;

(4) charges for insurance, other benefits; (5) filing or recording fees; (6) amount of finance charge; (7) time balance (sum of principal and finance charge, number of instalments, amount of each, and the due date); (8) and amounts added for insurance, recording fees, etc.).

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Text of Standard for Household Refrigerator Safety Device

Household refrigerators sold in interstate commerce after Oct. 30, 1958 will have to be equipped with some sort of safety device so that they can be opened from the inside.

The device, whatever it may be, will have to conform to the standard published on these pages. The standard was issued Aug. 1 by the U. S. Department of Commerce, as required by a law passed by Congress last year.

The standard sets up performance requirements and specifies the tests the safety device must meet.

As the National Bureau of Standards emphasizes, this is a first step toward making refrigerators safe for unwary children. But it offers no cause to let up on current campaigns to warn the public of the "death trap" danger and to disarm abandoned boxes.

CHAPTER II—National Bureau of Standards, Dept. of Commerce Subchapter F—Standards for Safety Devices

Part 260—Standard for Devices To Permit the Opening of Household Refrigerator Doors From the Inside

Pursuant to the provisions of section 3 of the act of Aug. 2, 1956, "To require certain safety devices on household refrigerators shipped in interstate

commerce," the following commercial standards are prescribed:

Sec.
260.1 Definitions.
260.2 Scope and application.
260.3 General requirements.
260.4 Detailed requirements.
260.5 Tests.
260.6 Provision for changes in the standard.

§ 260.1 Definitions. As used in this standard, unless the context specifically states otherwise:

(a) The term "act" means Public Law 930, 84th Congress, 2d Session, H. R. 11969.

(b) The term "device" means the mechanism or the means provided for enabling the doors of household refrigerators to be opened from the inside.

(c) The term "effective date" means the date under the provisions of the act after which all household refrigerators manufactured and introduced or delivered for introduction into interstate commerce must comply with this standard. This date is Oct. 30, 1958.

(d) The term "household refrigerator" means a cabinet or any part of a cabinet designed for the storage of food at temperature above 32° F., having a source of refrigeration and intended for household use.

(e) The term "opened" as applied to a refrigerator door means to effect release of the latching mechanism so that a trapped child would have to apply little or no further effort in order to escape.

(f) The term "shelving" means any shelf, basket, drawer, or baffle which can be readily removed from the refrigerator without the use of tools.

§ 260.2 Scope and application. This standard shall apply to devices furnished with household refrigerators manufactured and introduced or delivered for introduction into interstate commerce after the effective date which enable such refrigerators to be opened from the inside.

The requirements of this standard shall apply to household refrigerators in their normal operating position only.

The releasing feature(s) of the device shall be accessible from all spaces which (a) are bounded by interior walls or shelving, (b) are directly accessible when the exterior hinged door(s) is (are) opened, and (c) have a minimum dimension of 8 in. or more and a volume of 2 cu. ft. or more either with all shelving in place or as the result of the removal or the rearrangement of any or all of the shelving.

§ 260.3 General requirements. Household refrigerators shall be equipped with a device enabling the doors thereof to be opened easily from the inside, either by the application of an outwardly directed force to the inside of the door, or by the rotation of a knob similar to a conventional doorknob.

The device shall not render the refrigerator unsatisfactory for the preservation of food under any or all normal conditions of use.

§ 260.4 Detailed requirements—(a) Releasing forces. As determined by the tests called for in § 260.5, the device

(1) shall permit the refrigerator door to be opened on the application of a force equivalent to one which, if directed perpendicularly to the plane of the door and applied anywhere along the latch edge of the inside of the closed door, shall not exceed 15 lbs.,

(2) shall permit the refrigerator door to be opened on the application of clockwise or counterclockwise turning moment of not more than 5 in.-lb. to a knob on the door through an angle of rotation of 45° (±15°) in either direction, or

(3) shall function automatically to permit the door to be opened with a force of 15 lbs. or less applied as described in subparagraph (1) of this paragraph whenever space(s) exist or is (are) created with dimensions and volumes exceeding the dimensions and volumes imposed by § 260.2.

(b) Description and location of knob(s). The knob(s) shall resemble a conventional doorknob in shape and size, and shall be mounted near the latch side of the door extending into the cabinet at least ¼ in. beyond any inner door surface within a 6-in. radius of the knob center.

The knob(s) shall be mounted in such a manner that there is a minimum of ¼ in. clearance between the inner periphery of the knob(s) and adjacent inner door surfaces. The knob(s) shall be located so as to provide the accessibility required by § 260.2.

(c) Wear. The device shall comply with the requirements of paragraph (a) of this section after 300,000 cycles of operation of the door as determined by the tests called for in § 260.5.

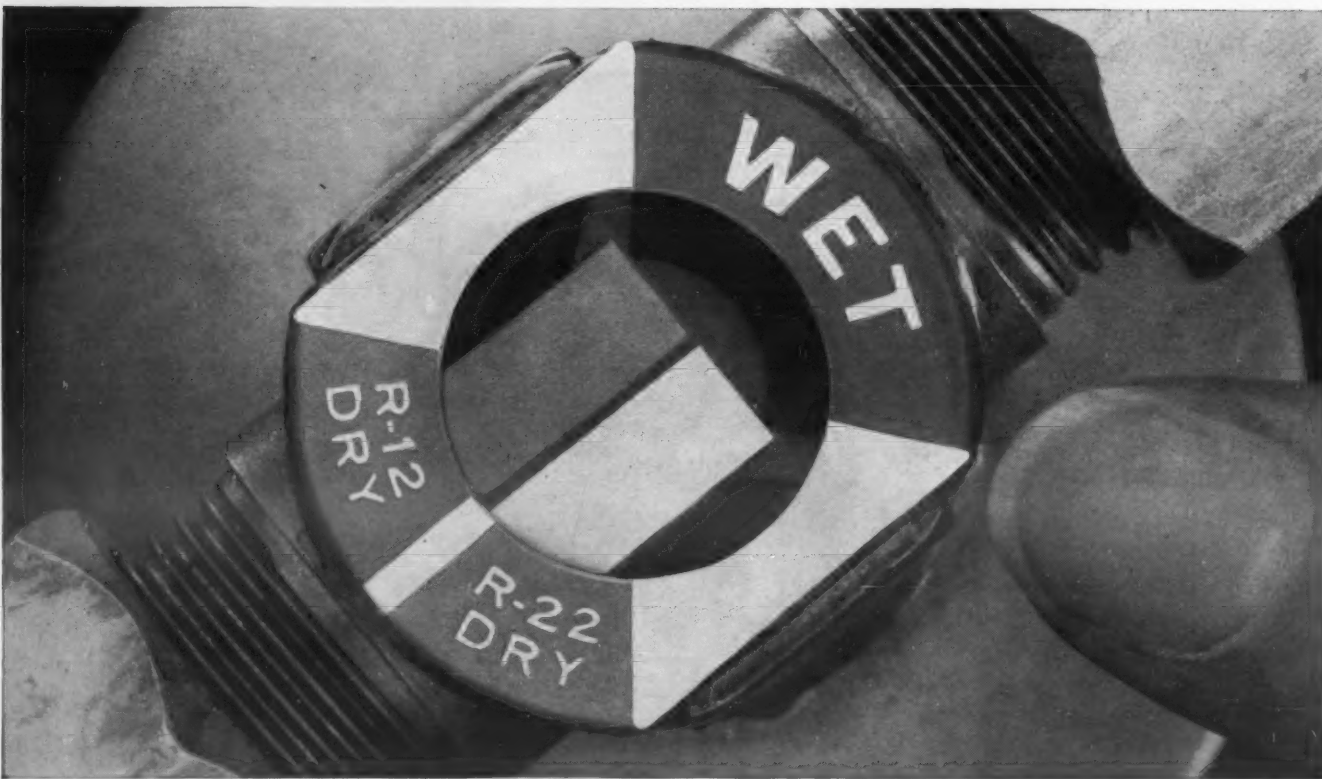
(d) Protection against adverse effects from spillage, cleaning, defrosting, and condensation. Devices shall be designed so that spillage of foods or beverages, cleaning or defrosting in accordance with manufacturer's recommendations, or normal condensation will not so adversely affect the operation of the device as to result in its failure to meet the requirements of paragraph (a) of this section, as determined by the tests called for in § 260.5.

(e) Devices which permit door to be opened as a result of forces or turning moments applied to movable components inside the refrigerator. Those

(Concluded on next page)

IT'S HERE!

The world's first moisture indicator with a built-in sight glass. The new **ANSUL SUPER DRY-EYE** tells you at a glance if the refrigerant is dry or dangerously wet, and lets you see the condition of the refrigerant. Here are the four big servicing questions the super **DRY-EYE** answers for you scientifically!



Q. If I am using Freon-12 how will I know if it is dangerously wet or dry?

A. Just look through the big window at the R-12 indicating element. If it is blue the refrigerant is safe; less than 10 parts per million of moisture present. If it is pink, moisture has climbed above 30 ppm—time to change driers.

Q. If I use Freon-22 in a system how will I know if it is wet or dry?

A. If the R-22 element is green your refrigerant is in safe operating condition—less than 20 ppm of moisture. If the element shows pink, moisture has reached the 25 ppm level; time to change driers and avert a costly breakdown.

Q. Will the Super Dry-Eye tell me if there is a low refrigerant charge?

A. Yes. The fused glass window, the first proven leak-proof

sight glass in the industry, permits visual inspection of the refrigerant at all times. Bubbles indicate a low refrigerant charge or a possible restriction in the line.

Q. Is there a simple, economical way of correcting the problems which the Super Dry-Eye tells me about?

A. The T-fitting which houses the Super Dry-Eye can also serve as a connection for an Ansul T-Flo drier without an additional break in the line. The drier screws in like a light bulb and hand tightening gives a leak-proof seal.

The Ansul Chemical Company, Marinette, Wisconsin

ANSUL

Safety Device Standards Text--

(Concluded from preceding page)

components of a device upon which the safety features of the device depend shall not break, crack, permanently deform, nor show other visible damage when subjected to forces and moments called for in the tests under § 260.5 (c). The requirements of paragraph (a) of this section, shall be satisfied after the device has been subjected to the tests under § 260.5 (c).

(f) **Power supply.** This device shall operate in accordance with the requirements of this standard with the electric, gas, or other fuel supply either on or off.

§ 260.5 **Tests.** It is the intent of this standard that where tests are not specified, the general and detailed requirements shall be checked by inspection, simple measurement, and by consideration of pertinent standard commercial practices. Compliance with requirements of § 260.4 (a), (c), (d), and (e) shall be checked with the aid of the following tests:

(a) **Test for releasing force on door.** The force measurements shall be made by means of a force gage with a calibrated accuracy within ± 0.3 lb. when measuring a force of 15 lbs. The dial of the gage shall be graduated with finest divisions not exceeding 0.2 lb., and the full-scale range shall not exceed 30 lbs. Measurements shall be made at three points on the door near the inside latch edge—one point near the top of the interior space created by removal of all shelving, one point near the bottom, and one point midway between these two points. The requirements of § 260.4 (a) (1) shall be satisfied.

(b) **Test for knob torque.** The measurement of the turning moment required to operate the knob release shall be made with a torque gage adapted for attachment to the knob or knob shaft. The gage shall have a calibrated accuracy within ± 0.10 in.-lb. when measuring a moment of 5 in.-lb.

The finest graduations on the dial of the gage shall correspond to a moment increment not greater than 0.10 in.-lb., and the full-scale range shall not exceed 10 in.-lb. in each direction from the null reading.

The turning moment shall be applied so as to rotate the knob the full amount required for release, in both a clockwise and a counterclockwise direction. The angle of rotation required for release shall be checked by means of an angle gage adapted to measure the angle of rotation about the longitudinal axis of the knob shaft.

The gage shall have a calibrated accuracy within $\pm 1^\circ$ at an angle of 45° , and the finest divisions shall not exceed 1° . The requirements of § 260.4 (a) (2) shall be satisfied.

(c) **Tests for strength of device components which affect the safety features of the device.** These tests shall apply only to devices which permit the door to be opened as a result of forces or turning moments applied to movable components inside the refrigerator.

A turning moment of 20 in.-lb. shall be applied for 50 successive operations in a clockwise direction, followed by 50 successive similar operations in a counterclockwise direction, to components designed to permit the door to be opened as a result of the application of a turning moment to them. The turning moment shall be applied to the outer periphery of the component provided.

The gage used for registering the moment applied shall have a calibrated accuracy within ± 0.4 in.-lb. when measuring a moment of 20 in.-lb. The finest graduations on the dial of the gage shall correspond to a moment increment not greater than 0.4 in.-lb. and the full scale range of the gage shall not exceed 40 in.-lb. in each direction from the null reading.

The turning moment applied in each operation shall be applied for a period of time sufficient for the component to come to rest after completing the extent of movement for which designed.

A pushing force of 20 lbs. shall be applied for 50 successive operations, followed, if applicable, by 50 successive similar operations with a pulling force, to components designed to permit the door to be opened as a result of the application of a force to them.

Areas which may be, in service, subjected to pushing or pulling forces which create maximum stresses, as for example, points on the outer periphery of components designed to transmit a turning moment, or unsupported portions of members or areas designed for transmitting a force, shall be subjected to test.

The gage used for registering the force applied shall have a calibrated accuracy within ± 0.4 lb. when measuring a force of 20 lbs. The finest graduations on the dial of the gage shall correspond to a force not in excess of 0.4 lb. and the full-scale range shall not exceed 40 lbs.

Upon being subjected to the tests in this paragraph, no device component on which the safety features of the device depend shall break, crack, permanently deform, or show other visible damage. The device must satisfy

the requirements of § 260.4 (a) after being subjected to the tests in this paragraph.

(d) **Simulated use test.** Tests shall be conducted on the completely assembled refrigerator in its normal operating position to determine that the release device complies with the requirements of § 260.4 during and after 300,000 cycles of door operation, and following exposure to spillage of foods and beverages, to cleaning and defrosting in accordance with manufacturer's recommendations, and to condensation.

The equipment provided for operating the door shall open the door sufficiently on each cycle to assure a complete cycle of operation for the latch mechanism.

§ 260.0 **Provision for changes in the standard.** Section 5 of the act provides for the possibility of changes in the commercial standard first established pursuant to section 3 of the act and allows a period of one year and ninety days for compliance with such

changes after they are published.

Any person wishing to propose a change in this commercial standard shall submit to the Director, National Bureau of Standards, United States Department of Commerce, Washington 25, D. C., the proposed change.

Before a change is recommended, the Director, National Bureau of Standards, shall secure advice and consultation from public or private sources including particularly the household refrigerator manufacturing industry and the Children's Bureau of the Department of Health, Education, and Welfare, and shall then forward such proposal with his recommendation to the Secretary of Commerce for such action as the Secretary deems appropriate.

The standards prescribed herein shall become effective upon publication in the Federal Register.

A. V. Astin, Director,
National Bureau of Standards.

Approved: July 26, 1957.

Sinclair Weeks,

Secretary of Commerce.

[F. R. Doc. 57-6223; Filed, July 31, 1957; 8:45 a.m.]

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LOTS OF 100 \$1.95 EA.

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4 NEW GENERAL ELECTRIC CAPACITORS

save space, eliminate extra mounting brackets, and cut costly connections in central air conditioners

Now General Electric offers four new rectangular capacitors designed especially for central air conditioners ranging in size from $1\frac{1}{4}$ to 5 tons. These higher rated capacitors mean that for many applications it is now possible to use a *single* unit instead of two or three lower-rated ones. Not only does this allow a considerable space saving, but it also reduces the number of mounting brackets and connections.

Higher capacitor ratings have been achieved with a minimum increase in case height and no increase in base dimensions. The table below gives you typical microfarad ratings for the new rectangular units.

Case Dimension	Typical Ratings
LARGE BASE RECTANGULARS	
$4\frac{1}{8} \times 2\frac{3}{4} \times 6\frac{3}{4}$	40 uf 370v — 35 uf 440v
$4\frac{1}{8} \times 2\frac{3}{4} \times 8$	45 uf 370v — 40 uf 440v
SMALL BASE RECTANGULARS	
$2\frac{1}{4} \times 2\frac{1}{2} \times 6\frac{3}{4}$	35 uf 236v
$2\frac{1}{4} \times 2\frac{1}{2} \times 8$	35 uf 370v — 25 uf 440v

The new rectangular cases, as well as G.E.'s full line of capacitors for air conditioners, feature a new anti-corrosion finish: durable Granite Gray case paint and electro tin-plated brass covers. This combination gives the capacitors more than four times the corrosion resistance of the previously used finish. It is listed by Underwriters' Laboratories, Inc. for all outdoor condensing and central air conditioning applications.

For more information about General Electric capacitors for air conditioners contact your nearest G.E. Apparatus Sales Office, or write for bulletin GEA-5895 "Capacitors for Air Conditioning Equipments," General Electric, Section 448-3, Schenectady, N. Y.

Progress Is Our Most Important Product
GENERAL ELECTRIC

Servicing Automobile Air Conditioners

(Vol. 2)

BY C. DALE MERICLE

The Kauffman unit is the fifth make to be discussed in the current series on automobile air conditioners. Makes previously described in this series were A.R.A., Artic-Kar, Frigette, and Frigikar. Several more makes by "independent" manufacturers will be reviewed in future instalments, following which units of most automobile manufacturers themselves will be described.

Models discussed in the current series are 1956 and/or 1957. For data on earlier models readers are referred to the original series of articles, which is available now in the handy manual, *Servicing Automobile Air Conditioners*.

KAUFFMAN (1)

Kauffman Air Conditioning Co.

4505 Olive St.
St. Louis 8, Mo.

Automobile air conditioners manufactured by Kauffman include an under-dash unit designated as "Type U.D." and a trunk-type model.

A magnetic clutch is standard on both types of units in the company's 1957 line. Refrigerating effect of the units is controlled by a thermostat which cycles the clutch and thus the compressor.

Condenser, of course, mounts

in front of the car radiator.

Refrigerant-12 is employed in both systems.

Compressor

The Tecumseh HH compressor is standard on 1957 Kauffman units.

Service valves of this compressor can be located on sides or back. Suction service valve is normally on left side (as viewed from flywheel end), and discharge service valve is on right side.

If one (or both) of these valves is installed on back of compressor, it is located on the same corresponding side of the unit.

Warner magnetic clutch is standard on 1957 models.

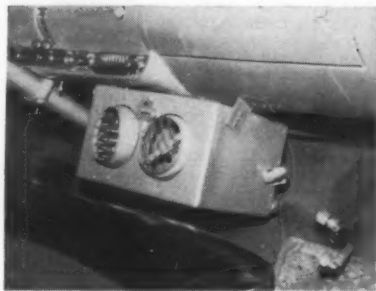


FIG. 1—Kauffman's 1957 "Type U.D." under-dash conditioner has air outlets on front and both sides.

Condenser

Condenser is located in front of car radiator.

Inlet and outlet of the condenser are on same side. The condenser may be installed with these connections on the right or left side. The company recommends that they be on the same side of the car as the compressor.

A combination receiver, drier, and sight glass is mounted beside the condenser. This is mounted vertically with sight glass at bottom. Inlet from condenser is at top.

On initial installation, Kauffman recommends that the car radiator fan that doesn't have six blades be replaced with a six-blade fan to increase air movement through condenser and radiator. Also, Kauffman suggests that the thermostat in the engine cooling system be removed during the summer because it has a tendency to restrict flow of water.

Evaporator

Evaporator assembly of both under-dash and trunk models houses the coil, a Detroit thermostatic expansion valve, a Ranco thermostat, and blower.

The U.D. under-dash unit (Fig. 1) employs a single fan. Air is discharged through four outlets. Two adjustable round outlets are provided on front of case. There is also an outlet on each side of the under-dash unit intended to direct cool air on legs of front seat passengers.

Kauffman trunk unit has two squirrel cage type blowers, one on each end of the cooling case. Flexible ducts connect the blowers to directional air outlets on parcel shelf directly above the cooling case. Return air is brought to the unit through two grilles in the middle of the parcel shelf and flexible connection to the cooling case.

(To Be Continued)

Coleman Opens Salt Lake City Heating, Cooling Warehouse

SALT LAKE CITY — The Coleman Co. has opened a large warehouse here to serve Coleman heating and air conditioning dealers in Utah, Idaho, Wyoming, and Nevada.

The Salt Lake office and warehouse will be part of the firm's western division.

MEN on the MOVE

Trane Co.—JOSEPH ROHATS of the San Antonio office has been named to head the Phoenix, Ariz. branch. ROBERT KNOWLES of the Richmond, Va. sales office will direct the Greenville, S. C. branch beginning Sept. 1.

Acme Industries, Inc.—JAMES F. CALVIN, previously regional sales manager for Frigidaire Div., General Motors Corp., has been appointed district manager in the OEM Div. at Jackson, Mich.

S. & R. Soda Fountain Mfg. Co., Inc. (New York City)—KENNETH WESTLING has been named factory representative for Pennsylvania and the east coast.

Norge Div., Borg-Warner Corp.—Appointment of WILLIAM D. STROBEN, with 18 years' experience in advertising and sales promotion, as director of advertising has been announced. He will be responsible for national and cooperative advertising of appliances.

Admiral Corp.—RICHARD F. GORMAN has been promoted to advertising manager, a move up from assistant.

Kennedy Valve Mfg. Co.—Four new appointments in the sales department have been announced. GENE REINERSMAN, previously with Amstar Supply Div. of American-Standard, will headquarter in Covington, Ky. with a sales territory of Kentucky and southern Indiana. W. F. STRICKLAND, formerly sales manager of Wilson and Mankin of Atlanta, will work in the Atlanta area, headquartering in Decatur, Ga. A. E. HOCKADAY, who has been with Conner Supply Co. in Dallas will work out of that city. EDW. SHORTALL, formerly with the Scott Co., San Francisco, will cover northern California.

Maytag Southwestern Co. (Dallas)—BEN SCHULER, a service supervisor in Maytag's St. Louis branch, will assume the duties of parts and service manager of this Texas and eastern New Mexico distributor.

Water Service Laboratories, Inc. (New York City)—HARVEY LEVITT has joined the chemical department and will be employed in the Philadelphia office. He was previously associated with National Drug Co.

Aluminum Co. of America—ARTHUR VINING DAVIS has resigned as board chairman and director of this firm. He has been a director since 1892 and chairman since 1928.

Specialty Motor Dept., General Electric Co.—VINCENT P. GREGG has been appointed manager of marketing. He was formerly manager of product planning, marketing research, and marketing administration. He succeeds J. J. HORAN who has been named manager of automotive components study.

L. W. Air Conditioning Corp. (New York City)—FRED JACOBS, who was chief engineer of Amic Mfg. Corp., has been appointed chief engineer. He will supervise development, design, and production of the "In-Wall" air conditioners.

General Air Conditioning Corp.—ROBER A. MUNSON, former district manager of Apex Electrical Mfg. Co., has been named regional sales manager.

Robertshaw-Fulton Controls Co.—Appointment of BEVERLY D. TAYLOR as treasurer was announced. He formerly was controller. WALTER H. STEFFLER, who resigned as treasurer, will continue as secretary. JOHN C. C. BYRNE, controller of the Grayson Controls Div., has been named controller.

Blais & Associates (Daytona Beach, Fla.)—STUART A. LEE, previously sales engineer with Theodore M. Williams Co., has joined the staff and will be in charge of commercial and residential heating and air conditioning.

Pittsburgh Lectrodryer Ups Industrial Drier Price

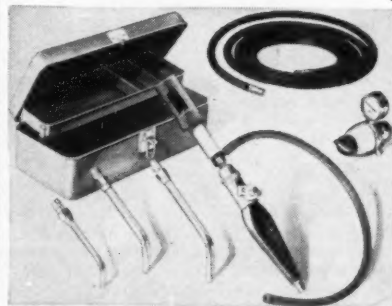
PITTSBURGH—A 10 to 15% price increase on industrial driers was announced by George L. Simpson, president of Pittsburgh Lectrodryer Div. of McGraw-Edison Co.

The increase includes a 10% hike on the general line of industrial driers and a 15% raise on special atmospheric dehumidifiers.

"Ever-climbing labor and material costs, coupled with our refusal to lower quality, has forced this increase," Simpson declared.

Lectrodryers are used by many types of industry to remove undesirable moisture from air, other gases, or organic liquids. The armed forces also use them extensively to protect stored materials from damage caused by high humidity, it was explained.

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for
everyday repairs



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One kit gives you all the equipment you need to repair, service, or install any air-conditioning or refrigeration system. Three open-flame torch stems allow you to choose the exact flame for any soldering, heating, or brazing job.

A fourth stem provides a quick and sure device for locating leaks of non-combustible refrigerant gases such as F-11, F-12, F-21, F-22, F-113, F-114, and Carrene. This detector instantly reacts to as little as 100 parts of halide refrigerant gas in a million parts of air. All stems fit interchangeably on the same cool-grip handle.

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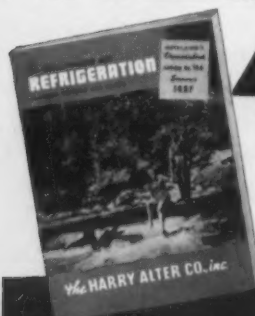


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**PARTS
and
Supplies**

Servel--

(Concluded from Page 1, Col. 5)
35 acres of land, buildings with 1,250,000 sq. ft. of floor space, and machinery, tools, and equipment with a net book value of approximately \$5 million.

Louis Ruthenberg, Servel board chairman, and Duncan C. Menzies, president, told stockholders that the proceeds from the sale of the company's property would be used to acquire one or more businesses "of a stable character and with a demonstrated earning capacity."

The proxy statement called stockholders' attention to the company's loss carry-forward of more than \$17 million, which, under existing laws, would permit Servel to have an income up to this amount without paying any federal tax on income.

Included in the purchase agreement signed by officials of Servel and Arkansas Louisiana Gas are the entire business, property, and assets (other than accounts receivable) of the Air Conditioning Div. and the building of the Defense Div.

This aggregates to 14 acres of land and several buildings totaling 478,000 sq. ft. of floor space.

The \$4 million sales figure includes about \$1 million for inventory and \$3 million for other property and assets.

Servel Would Remain As Consultant for 5 Yrs.

Under an additional agreement Servel agrees not to compete with the business it is selling. It will also be retained as a consultant in the air conditioning field for \$200,000 per year over a five-year period, payable on a monthly basis.

A Servel spokesman said that Servel will continue to operate the division "in a normal manner" until shortly after the stockholders' meeting. Then, if approval of the sale is granted, Arkansas Louisiana Gas will take over operations.

The Arkansas Louisiana Gas spokesman said "any plans as to future personnel or to development of additional lines necessarily will not be known until after Sept. 11."

He added that operation of the division would be by a wholly-owned subsidiary of Arkansas Louisiana Gas.

Purchaser's Background

Arkansas Louisiana Gas Co. has headquarters in Shreveport, La. It is headed by W. R. Stephens of Little Rock, Ark., as board chairman and J. C. Hamilton of Shreveport as president.

The company describes itself as "an integrated gas utility engaged in exploration, production, products extraction, transmission, and distribution in Arkansas, Louisiana, and Texas."

It serves 252,000 customers in 152 communities. Last year it sold some 210 billion cu. ft. of gas with gross revenues approximating \$54.5 million.

Stephens and Hamilton said that the purchase of Servel's air conditioning division was in line with the company's program for diversification and expansion of operations.

It is also planning to build and operate a \$12 to \$15 million cement plant at Foreman, Ark.

Standard Maintenance Agreement--

(Concluded from Page 1, Col. 3) year.

between the parties, Ely noted.

Here is the actual wording:

"This standard maintenance agreement, made this day of 19.., between, contractor, licensed by Contractor's State License Board, and, purchaser,, (address), location of equipment (if different than above), to cover equipment listed on pages through attached hereto and made a part hereof.

"A. In furnishing standard maintenance, the contractor agrees to do the following:

"1. Furnish all labor and material as needed to maintain and repair the listed equipment.

"2. Furnish a minimum of inspections per year.

"3. Have service available 24 hours per day, 365 days per

"4. Furnish complete maintenance and replacement, when not repairable, of all parts, including evaporators, condensing units, expansion valves, fan and compressor motors, water pumps, controls, refrigerant, etc., but not including replacement of towers and condensers.

"B. Optional services:

"1. Chemical cleaning of tower and condensers. yes.... no....

"2. Furnish hardware and gaskets on refrigerated boxes. yes.... no....

"3. Purchaser agrees to pay difference between straight time and overtime on all overtime labor. yes.... no....

"4. Replacement of cooling towers and condensers when necessary. yes.... no....

"C. 1. This agreement does not include:

"(a) maintenance, repair, or replacement of: ductwork, or cleaning of same; electrical disconnect switches; recording or portable instruments; gauges or thermometers; water drain or waste lines; decorative casing or cabinets, and the appearance thereof.

"2. This agreement does not bind the contractor to make any corrections in design of equipment.

"3. Alterations, additions, adjustments, or repairs by others, unless authorized by the contractor shall, at the option of the contractor, terminate his obligation under this agreement.

"4. Purchaser will accept the judgment of the contractor as to the best means and methods to be employed for any corrective or repair work necessary.

"5. Contractor shall not be liable for any loss or damage whatsoever.

"6. Contractor shall not be

required to remove or replace or alter any part of the building structure in the performance of this agreement.

"7. Expenses to contractor caused by improper operation or negligence or misuse of the equipment, or by any cause beyond the control of contractor, shall be paid by purchaser at current established prices.

"8. Standard maintenance will be furnished for the sum of \$..... per to be paid in advance.

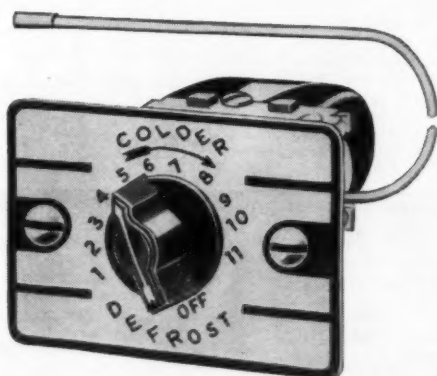
"9. This agreement shall become effective the day of 19..., and shall remain in effect for a period of one year, and from year to year thereafter, except that either party may upon 30 days' written notice to the other terminate this agreement on any anniversary date. The contractor may also terminate the agreement immediately upon non-payment of the contract price when due."

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Reference manual (No. 1660) as a guide. Lists over 5,000 Ranco control uses—largest line in the industry—by specific installation. Buy your copy from your Ranco Wholesaler today.

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A10-518

HOUSEHOLD CONTROLS

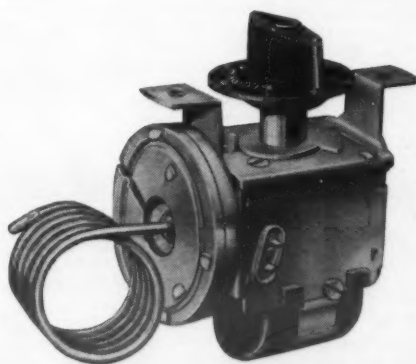
Ranco builds replacement controls that help simplify your household refrigeration installations.



010-1408

COMMERCIAL CONTROLS

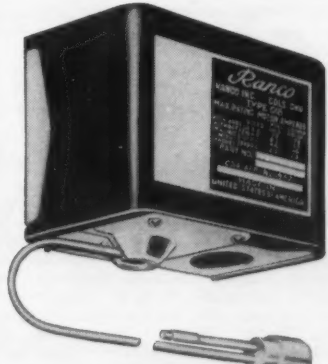
You'll find them in the Ranco commercial line—for beverage, milk, beer and ice cream coolers, water coolers, freezer cabinets, display cases, ice makers, blower coils, etc.



A13-110

AIR CONDITIONING CONTROLS

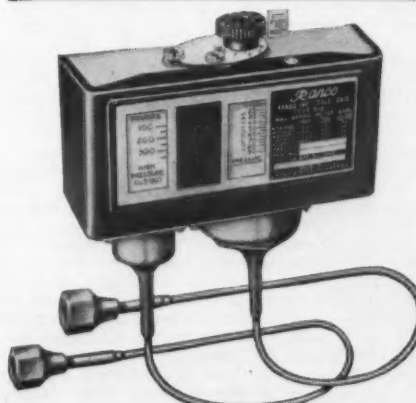
Ranco's air conditioning controls, with narrow differentials are designed to accommodate many installations.



018-100

ICE BANK CONTROL

This specialized Ranco control was developed to control the amount of ice made inside some milk cooler cabinets.



012-1594

DUAL PRESSURE CONTROL

For Air Conditioning systems this Ranco commercial control features a high pressure cut-out with non-adjustable high pressure limit stop, low pressure safety cut-out and a manual reset arm for both the high and low pressure cut-out.



016-107

HIGH-RATED PRESSURE, TEMPERATURE CONTROLS

Accommodate higher electrical ratings on some commercial equipment. Switches open or close on rise of temperature or pressure. Pressure ranges: 5 to 360 psi. Temperature ranges: -30° to 105°.

World's Largest Manufacturer of Refrigeration Controls

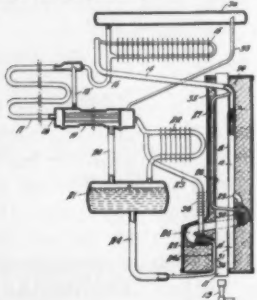


Ranco Inc.
COLUMBUS 1, OHIO

PATENTS

Week of July 2
(Continued)

2,797,555. ABSORPTION REFRIGERATION. Wilhelm Georg Kogel, Stockholm, Sweden, assignor to Aktiebolaget Elektrolux, Stockholm, Sweden, a corporation of Sweden.

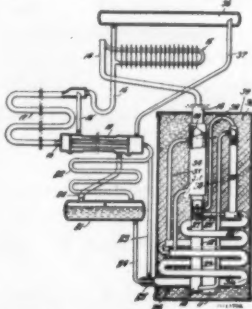


1. In the art of refrigerating with a system employing an inert gas which includes the steps of heating a member at a place of heating by a source of heat external to the system, expelling vapor from absorption liquid at such place of heating while the liquid is in good heat conductive relation with said member, absorbing refrigerant into absorption liquid at a place of absorption, flowing absorption liquid weak in refrigerant from the place of heating to the place of absorption in a first path of flow, and flowing absorption liquid enriched in refrigerant from the place of absorption to the place of heating in a second path of flow in thermal exchange relation with liquid in the first path of flow.

2,797,557. ABSORPTION REFRIGERATION APPARATUS. Wilhelm Georg Kogel, Stockholm, Sweden, assignor to Aktiebolaget Elektrolux, Stockholm, Sweden, a corporation of Sweden. Continuation of application Serial No. 305,575, Aug. 21, 1952. This application Feb. 15, 1956, Serial No. 565,586. Claims priority, application Sweden Sept. 22, 1951.

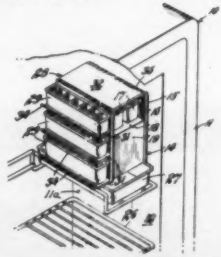
1. In absorption refrigeration apparatus having circuits for circulation of refrigerant, inert gas and absorption

liquid, the circuit for circulation of absorption liquid including an absorber, liquid heat exchanger means and



a generator comprising a boiler, means for heating said boiler, said liquid heat exchanger means having one passage for conducting absorption liquid rich in refrigerant from said absorber to said generator and another passage for conducting absorption liquid weak in refrigerant from said generator to said absorber.

2,797,558. ATTACHMENT FOR LOW TEMPERATURE COOLING UNITS. Russell Yoder Graul, Vercheres, Quebec, Canada, assignor to Aktiebolaget Elektrolux, Stockholm, Sweden, a corporation of Sweden.



1. For use with a cooling unit which is disposed in a thermally insulated space of a refrigerator cabinet having an inner liner and formed with a compartment therein for receiving at least one ice tray adapted to contain water to be frozen, said cooling unit, which is accessible through an opening in a front wall of the cabinet and spaced from the inner liner and extends from the front to the rear walls of the cabinet, being rectangular-shaped in vertical planes parallel to the front wall of the cabinet and formed with upright sides and horizontally extending anchoring surfaces at different levels,

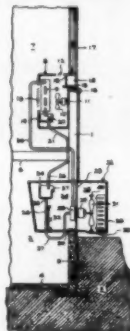
Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented.

Printed copies of patents, reissued patents, and patent designs may be secured from the Patent Office; patents and reissues are 25¢ each, while designs are furnished at 10¢ each. Copies should be ordered by number and title and a mention of the fact if they are either Designs or Reissues.

Address orders for any of the above to: Commissioner of Patents, Washington 25, D. C.

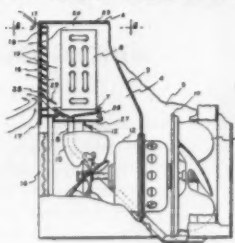
an attachment for increasing the shelf area of said cooling unit.

2,797,559. AIR CONDITIONING APPARATUS. Leonard W. Atchison, Louisville, Ky., assignor to General Electric Co., a corporation of New York.



1. A heat transfer system for an enclosure comprising a first heat exchanger within said enclosure, a second heat exchanger arranged below said first heat exchanger, means for circulating water between said heat exchangers, means associated with said second heat exchanger for refrigerating said water, first accumulating means arranged below said first heat exchanger to collect and pass together condensate from said first heat exchanger and said circulated water, second accumulating means arranged above and in fluid communication with said second heat exchanger and receiving said condensate and water from said first accumulating means, a lip on said second accumulating means over which excess water flows, and means to dispose of excess water resulting from said added condensate from said system.

2,797,560. AIR CONDITIONING APPARATUS HAVING CONDENSATE DISPOSAL. Paul I. Koolker, Louisville, and Stanley E. Rose, Lyndon, Ky., assignors to General Electric Co.

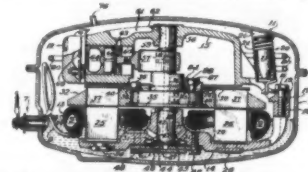


1. An air conditioning unit for conditioning a room comprising an evaporator, blower means for circulating warm air through said evaporator, an air discharge grille within said unit for discharging air passing through said evaporator, a first drip tray positioned vertically below said evaporator for catching condensate falling from said evaporator, and means for maintaining the bottom portion of said discharge grille relatively warm in relation to said air discharging from said evaporator, said means comprising a second drip tray positioned underneath and spaced from said first drip tray to form a passage between said first and second drip trays for bypassing warm air from said blower to said bottom portion of said grille whereby both said bottom portion of said grille and said second drip tray are maintained above condensate temperatures and whereby condensate falling into said second drip tray from the bottom of said first drip tray is vaporized.

2,797,857. REFRIGERATOR COMPRESSOR. Milton Y. Warner, Evansville, Ind., assignor, by mesne assignments, to Whirlpool-Seeger Corp.

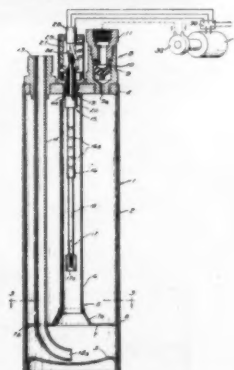
1. In a device of the class described, a stator support, a crankcase, a cylinder formed in said crankcase, a piston slidably mounted in said cylinder, an eccentric, a rotor, a shaft, said stator support and said crankcase mounted together at the peripheries thereof, said stator support and

said crankcase each formed to have a bearing therein, said shaft rotatively mounted in said bearings substantially at the ends of said shaft, said stator



rigidly mounted to said stator support between said stator support and said crankcase, said rotor rigidly mounted to said shaft between said stator and said crankcase said eccentric rigidly mounted to said shaft between said rotor and said crankcase, and means movably connecting said piston to said eccentric, said shaft formed to have a beveled portion thereon adjacent to said rotor, said rotor having a pair of projections thereon adjacent to said shaft, a counter-weight for balancing said shaft, said counter-weight formed to substantially the shape of a semicircular ring, a pair of slots in the outer periphery of said counter-weight for cooperation with said projections on said rotor, said counter-weight further formed to have a beveled edge on an inner circumference thereof for cooperation with said beveled portion on said shaft, said counter-weight further formed to have a hole therethrough, a bolt projecting through said hole in said counter-weight and being threaded into said rotor, so that said pair of slots in said counter-weight are forced against said projections by the cooperating levels of said counter-weight and said shaft when said bolt is tightened.

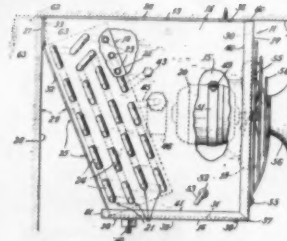
2,798,135. LIQUID LEVEL CONTROL MEANS. Frank O. Graham, Detroit, Mich., assignor to Temprite Products Corp., Birmingham, Mich.



1. Electric liquid-level control means of apparatus for the simultaneous treatment of gaseous and liquid materials under super-atmospheric pressure, the said means comprising the combination with a hermetically closed metal tank for holding gas and liquid to be treated; of a metal tube-like electrode support having a gas-tight mounting in the top wall of the tank to provide a passage therethrough; a bushing of solid dielectric material disposed in the passage through the support with a gas-tight forced fit therein; a tubular metal electrode extending upward through and somewhat above the upper end of the bushing and having a gas-tight forced fit in the bushing; and a rod-shaped electrode unit of greater length than the tubular electrode extending through the latter with a gas-tight fit.

Week of July 9

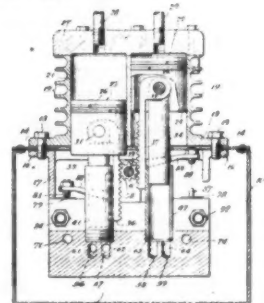
2,798,366. WIDESPREAD AIR CIRCULATING REFRIGERATING UNIT. Edward J. Eri, Chicago, Ill., assignor to Refrigeration Appliances, Inc., Chicago, Ill.



1. A refrigerating unit of the class described which is mountable in a refrigeration compartment as a complete independent assembly and comprises a housing having top and bottom walls and opposite side walls and provided with an entrance thereto at the rear end and an exit therefrom at the front end, said housing containing a refrigerant evaporator coil and a motor and a fan all mounted in the housing and the fan being operable by the motor to circulate air through the housing in heat exchanging relation with the evaporator coil from said entrance to said exit, said unit having the rear end thereof undercut with the housing top wall projecting rearwardly a substantial distance beyond the bottom wall of the housing and overlying a space which is open at the bottom and at the opposite sides and through which air is supplied to the rear entrance of the housing, the said evaporator coil being located in the rear end of the housing and sloping rearwardly over said space at an inclination corre-

(This patent, issued on May 7, was inadvertently omitted from the listing of that date.)

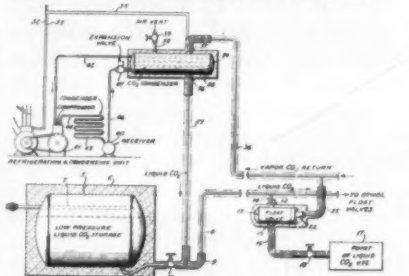
2,791,370. HYDRAULICALLY OPERATED COMPRESSOR. Otto J. Schemmel, Chicago, Ill.



1. A pumping unit including in combination a pair of main cylinders having floors, a plunger reciprocally mounted in each cylinder, a rock element, means to journal said rock element for rocking movement, connections between the rock element and both plungers, said connections being constituted for simultaneous reciprocating movements of the plungers in their cylinders in opposite directions towards and from the floors of the cylinders, conduits in communication with each cylinder adjacent to the floor thereof, a pressure fluid supply conduit, a fluid release conduit, a main valve casing having a valve space, a reciprocable main valve member reciprocable in said valve space between a first position and a second position, pressure fluid and release fluid passages between the pressure fluid supply conduit and the fluid release conduit respectively and said main valve casing space, cylinder fluid passages between the conduits of each cylinder and said main valve casing space, there being fluid passages in said reciprocable main valve, said passages of the main valve and the points of connection of the pressure fluid supply passage and the fluid release passage with the valve casing space.

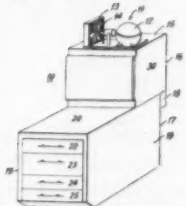
sponding substantially to that of a plane coincident with the rear ends of the top and bottom walls of the housing.

2,798,365. SYSTEM FOR DISPENSING LIQUID CARBON DIOXIDE. James C. Hesson, Riverdale, Ill., assignor to Cardox Corp., Chicago, Ill.



1. Apparatus for delivering liquid carbon dioxide from a storage container at a low temperature and pressure to a point of use, comprising means forming a flow path from said storage container to said point of use, means in said flow path adjacent said point of use for separating the vapor from the liquid carbon dioxide to be discharged at the point of use, a chamber arranged at a selected elevation above the highest point of said flow path, means for conducting the vapor from said vapor separating means to said chamber, means providing a path for the gravitational flow of liquid from said chamber to said flow path, and refrigerating means for reducing the temperature and vapor pressure.

2,798,367. "L" REFRIGERATOR ASSEMBLY. Guyon L. C. Earle, New York, N. Y.



1. An L-shaped refrigerator comprising a deep lower refrigerated portion having a plurality of drawers therein placed one above another below an insulated top member, an upper shallow refrigerated portion the front of which is to the rear of the front of the lower refrigerated portion, a liquefying unit above the upper refrigerated portion, an upper evaporator member in said upper refrigerated portion, a lower evaporator member in said lower refrigerated portion at least a part of which projects below the bottom of said insulated top member and is above the upper one of said drawers whereby said upper drawer acts as a horizontal deflecting member for cold air from said lower evaporator, and means for connecting the two evaporators in a hermetic hook-up with said liquefying unit.

(To Be Continued)

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POSITIONS WANTED

DISTRICT SALES manager—Air conditioning, heating and refrigeration. Package and central station equipment. Experienced contacting dealers, contractors and national accounts. Successful in developing and building new dealers, conducting sales training, promotion and merchandising programs. Intensive field work with others at retail level. Desires permanent connection with company serving distributors or dealers preferably New York area. Willing to relocate. BOX A5847, Air Conditioning & Refrigeration News.

ENGINEERING AND manufacturing manager, 17 years' experience refrigeration appliances and domestic air conditioning. 10 years' product engineering with 7 years as chief engineer. 7 years' manufacturing supervision, with two years at General Manager level. Seek opportunity with manufacturer needing new or revitalized products. BOX A5855, Air Conditioning & Refrigeration News.

REFRIGERATION SERVICE engineer with years of experience in all phases of refrigeration, field training and managing personnel, desiring connection on west coast with distributor or manufacturer as sales and service representative. BOX A5856, Air Conditioning & Refrigeration News.

SALES ENGINEER—10 years' experience in refrigeration, heating and cooling. Married; presently employed; desires permanent position, preferably in Detroit area with mechanical contractor. Can size equipment, do duct layout, blueprint take-off, estimating and supervision of jobs. Acquainted with and some following with general contractors. Reply BOX A5858, Air Conditioning & Refrigeration News.

POSITIONS AVAILABLE

DESIGN AND development engineer with education and experience suitable for work on refrigeration and air conditioning controls. Expanding mar-

kets demand an expansion of our engineering work. Join us, and help meet these challenges. Benefits for patents, educational subsidies, and other employee benefits. Modern air conditioned engineering facilities. Reply in confidence giving details of education, experience and salary requirements. CONTROLS COMPANY OF AMERICA, (formerly A-P Controls), 2450 N. 32nd Street, Milwaukee 45, Wisconsin.

QUALIFIED COMMERCIAL refrigeration and air conditioning service men. Plenty year round work—Top pay scale. Hussmann—Frigidaire experience preferred. WHITE DISTRIBUTING COMPANY, 907 E. First Street, Wichita, Kansas.

MANUFACTURER'S REPRESENTATIVES with commercial refrigeration experience wanted. We have several desirable territories open. Complete line refrigerated display and storage fixtures, including latest design self-service models for supermarkets; also bakery refrigerators and complete line institutional and restaurant refrigerators. Contact dealers, distributors, and food chains. Give complete details as to experience and industry references in first letter. Replies held in confidence. BOX A5848, Air Conditioning & Refrigeration News.

REFRIGERATION ENGINEER—Excellent opportunity, with well established firm located in northern midwest state, for graduate engineer specializing in refrigeration. Must do research and development work on small commercial equipment up to and including one h.p. Assume supervision of laboratory and setup production specifications. Salary commensurate with ability. BOX A5857, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

3-TON WORTHINGTON model "RWR" basic cooling cycles, new in factory crates. Available due to A. O. Smith Co., change in models. Substantial savings below jobber cost. S. M. DAVIS, 510 LaSalle Street, St. Louis 4, Mo.

MISCELLANEOUS

ATTENTION SERVICEMEN: Send for free circulars and bulletins on refrigeration parts and equipment. Real money saving values: WALTER W. STARR, 2833 Lincoln Avenue, Chicago 13, Illinois.

For more information about products advertised on this page use Information Center, page 18.

Government Contracts

SYNOPSIS OF PROPOSED PROCUREMENT

NOTICE TO SMALL FIRMS

Raritan Arsenal, Metuchen, N. J.
REPLACEMENT OF HEATING SYSTEM in Bldgs. 0-7 and 0-9 and indirect domestic hot water boilers in Bldgs. 0-17, 0-19, 0-21, and 0-23—Job—IFB 58-19—Bid Opening 4 Sept. 57.

Purchasing & Contracting Office, Picatinny Arsenal, Dover, N. J.
DESIGN, FABRICATE AND INSTALL AIR CONDITIONING SYSTEM 6 Bldgs. Site Inspections 13 Aug. and 20 Aug. 57 at 10:30 a.m.—Job—IFB 58-15—Bid Opening 5 Sept. 57.

ARMY—ARSENAL AND ORDNANCE PROCUREMENTS

Picatinny Arsenal, Dover, N. J.
CHAMBER, CONDITIONING, high-low temperature and humidity—1 ea.—IFB 58-11—Bid Opening 3 Sept. 57.

AIR FORCE

Procurement Office, Geiger Field, Spokane, Wash.
REPAIR EXISTING HEATING SYSTEM in Bldg. 725; Installation of heating & air conditioning system in rooms 103 & 103A of Bldg. 1309, Geiger Field, Spokane, Wash.—Job—IFB 45-614-58-8B—Bid Opening 4 Sept. 57.

GENERAL SERVICES ADMINISTRATION

General Services Administration, Region 4, Business Service Center, 50 Seventh St., N.E., Atlanta 23, Ga.
CENTRAL AIR CONDITIONING SYSTEM, etc. Jacksonville, Fla. Post Office and Court House—Job—IFB CR4-1700—Bid Opening 9-13-57.

General Services Administration, Region 3, Business Service Center, 7th and D Sts., S.W., Washington 25, D. C.
AIR CONDITIONING UNITS, 208 volt, 60 cycle, single phase, Type I, Fed. Spec. 00-A-372 and Amend. 1, 12,000 B.t.u./hr. minimum capacity—26 ea.—IFB R2-87779-R—Bid Opening 8-26-57.

General Services Administration, Region 2, Business Service Center, 250 Hudson St., New York 13, N. Y.
CERTAIN AIR CONDITIONING AT U. S. MINT, Philadelphia, Pa.—Job—IFB 2PC-8-173(ADVT)—Bid Opening 8-19-57.

U. S. POST OFFICE DEPARTMENT

Chief of Procurement, Bureau of Facilities, Post Office Department, Washington 25, D. C.
AIR CONDITIONING UNITS, 5-ton—6 delivered to Philadelphia, Pa. post office—IFB 1534—Bid Opening 8-20-57.
COOLING TOWER, 15-ton unit—1 to Albuquerque, New Mexico—IFB 1535—Bid Opening 8-20-57.
AIR CONDITIONING UNITS, 5-ton—3 to Albuquerque, New Mexico—IFB 1536—Bid Opening 8-20-57.

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ST. LOUIS 23, MO.

Steveco Adds Line of Room Unit Motors

ATLANTA — Steveco, Inc., a major distributor of replacement motors for refrigeration condenser fan units for the past six years, has added a complete line of room air conditioner motors, the company announced.

According to O. E. Stevens, Steveco president, the replacement motors for room air conditioners will be made available to refrigeration parts wholesalers and General Electric Small Motor Service Stations on a stock shipment basis throughout the country.

The replacement motors are manufactured by General Electric's Specialty Component Motor Dept.

Steveco is located here at 1985 Howell Mill Rd., N.W., according to the report.

N. O. Nelson Deposits \$2.5 Million To Pay Off Its Creditors

ST. LOUIS—N. O. Nelson Co., refrigeration, air conditioning, heating, and plumbing supply firm, recently deposited with Elliot H. Stein, trustee for the company, in excess of \$2.5 million for the purpose of making full cash payment to its creditors, as provided in a reorganization plan approved by Judge Roy W. Harper.

The assets of Nelson were turned over to its management, headed by Glenn Seydel, its president, a Davenport, Iowa businessman.

Seydel said that \$1,768,000 of the funds available to pay creditors had been loaned to the company by Walter E. Heller & Co., of Chicago. He said that the loan, together with cash held by the trustee, would permit full cash payment of all creditors' claims and allowances approved by Judge Harper.

The reorganization plan also provides for payment of a loan made by Heller to Nelson in December, 1955, which had been challenged in court. The suit was dismissed, and the old and new Heller loans will be payable over two years and subordinated to the current payment of trade creditors and certain other claims.

Seydel and his associates acquired 96% of the Nelson stock in April. They have offered \$55 per share to all minority stockholders, or payment of a \$33 per share dividend which had been declared in 1956 by Nelson's former management.

Seydel stated that the reorganization was made possible through the cooperation of the trustee, Heller, and the creditors, and the business will proceed in operation.

Now Representing...

Unitary Equipment Div., Carrier Corp.—DESIGNATED WEATHER DISTRIBUTORS, INC., Mineola, L. I., N. Y. has been organized to serve as Long Island distributor for Carrier air conditioning and refrigeration products.

Gibson Refrigerator Co., Div. of Hupp Corp.—ORGILL BROTHERS HARDWARE CO. has been named distributor in the Jackson, Miss. trading area. It will represent Gibson in 28 counties of south-central Mississippi. The firm is a branch of Orgill Brothers Hardware Co., Memphis and the Gibson franchise is for the Jackson branch only. W. L. ROBERTS, INC. has been appointed distributor of refrigerators, ranges, and home freezers in the Memphis area. MILLS-MORRIS there, which formerly handled the full Gibson line, will continue to handle Gibson room air conditioners. RY-BAR DISTRIBUTING CO., Portland, Ore., has been named for the full line in that area, succeeding Electrical Distributors, Inc. of Portland.

York Corp., subsidiary of Borg-Warner Corp.—UNITED REFRIGERATION SERVICE, INC., Columbus, Ohio, has been named wholesale distributor in 22 central Ohio counties for ice making equipment and condensing units. The firm is also retail distributor in Franklin county.

Westinghouse Electric Corp.—Appointment of N. W. MARTIN & BROS., INC., Richmond, Va., as an authorized air conditioning dealer was announced.

Niagara Machine & Tool Works—Appointment of BLACKMAN & NEUTZEL MACHINERY CO., St. Louis, as distributor in Arkansas and all of Kansas except the southernmost counties was announced.

Manitowoc Equipment Works—Appointment of area sales representatives for built-in refrigerator-freezer combinations has been announced. BOSTWICK INDUSTRIES CORP., Kendallville, Ind., will cover Indiana and Ohio. ADAMS SALES CO., Waterloo, Iowa, will handle Iowa and Nebraska. CARL R. LINDELL SALES CO., Minneapolis, will cover Minnesota, North, South Dakota.

Mid-Atlantic NISA Formed In Baltimore

BALTIMORE — A regional trade association of electric motor service and sales firms in Maryland, District of Columbia, and parts of West Virginia and Virginia has been organized by members of the National Industrial Service Association, Inc.

The group is to be known as Mid-Atlantic Chapter of NISA. It was organized at a meeting at the Stafford hotel in Baltimore attended by more than 20.

President of the new chapter is Lee H. Harris of Harco Equipment Co., Washington, D. C. Other officers are: Vice president Joseph U. Kauffman, Jr., Kauffman Electric Co., Baltimore; secretary-treasurer, Leon E. Hopkins, Carty Electric & Armature Service, Inc., Washington.

DETECT TROUBLE FAST!

IN ANY AIR CONDITIONING AND REFRIGERATION LIQUID LINE

KEROTEST MODEL R81C
IN-LINE
Liquid
INDICATOR



It's easy to detect trouble quickly in refrigeration lines with this indicator. Letter "K" is etched on pyrex heat-resisting tube which shows through sturdy brass body at sight port. When "K" is not magnified, it indicates a shortage of refrigerant or a clogged line. Available in male and female flare sizes. Maximum operating pressure—300 p.s.i. and maximum temperature 200° F. Easy to install.

See your Kerotest wholesaler!
Ask for Model No. R81C.

KEROTEST

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2502 Liberty Avenue
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from
AUTO-LITE

INKLESS TEMPERATURE RECORDER!

The newest advance in temperature recording... Auto-Lite model 2200 operates completely without ink. It simplifies temperature recording for most processing operations.

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INDUSTRIAL THERMOMETER DIVISION
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Electric or mechanical chart drive available for either 24-hr. or 7-day rotation. In wall mounting, portable and self-contained type cases. Remote reading with capillary tubing. Temperature charts in ranges from 40°F to +550°F. Write for further information.

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Plenum type illustrated may be installed above or below furnace.

WILLIAMSON Waterless Wethermatic AirRefrigeration units can be added quickly and easily to any residential or store forced air heating system. Choose from plenum, duct, counterflow, suspended horizontal or console types for efficient low cost operation.

- No water needed
- No sewer or water connections
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- Full tonnage provided

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WILLIAMSON WETHERMATIC

AIRRefrigeration

THE WILLIAMSON CO., 3320-E-8 Madison Rd., Cincinnati 9, Ohio

So. Calif. Strike-- Intensive Hotpoint Radio Campaign

(Concluded from Page 1, Col. 4)

hourly increase over a three-year period.

Armed with this information a record turnout of 1,700 to 2,000 members attended the regular monthly membership meeting of Local 108 which covers Los Angeles county.

While a reported protest did not come to a head, enough unrest among union members was noted to lead to the belief that the international vice president and staff would bargain in earnest at the next session.

Two attorneys were reported refiling proceedings for a restraining order on behalf of the Sheet Metal Trades Administrative Council. The new filing meets court requirements as to form, and would permit concept orders against those employers not members of the associations who sought their own agreement with the union.

Nelson Sells Branches--

(Concluded from Page 1, Col. 5)

that acquired 96% of the firm's stock recently, said "There is a possibility we will move out of St. Louis if our property here is sold."

Forced into bankruptcy last year as a result of moves by former owner, Bellanca Corp. and its president, Sydney L. Albert, the plumbing supply company at one time had 20 branches.

Three branches were closed during reorganization and Seydel disclosed he expects to reduce the number to about 10.

"Many branches were operating at substantial losses which we must stop if we are going to be able to maintain the profitable branches," Seydel said.

Stockholders will be asked at a special meeting Sept. 4 to approve closing of the home or general offices here and sale or disposal "of all or any part of the property of the company, real and personal." Stockholders also will be asked to approve a reduction in directors from seven to five and the closing of the Memphis and St. Louis branch offices.

Sears Conditioners--

(Concluded from Page 1, Col. 3)

It was stated that the decision to liquidate the Mira-Cold operation was reached after Sears officials had made an intensive survey of the situation. It was felt that the physical limitations of the Mira-Cold properties would have made it economically unsound to attempt to prepare it for the kind of expansion which Sears is apparently planning for its air conditioning products.

Sears marketed an expanded air conditioner line this year, adding an 85-lb. portable unit and a "Slenderette" model to its room unit line.

F. B. Ranney Dies at 53

GREENVILLE, Mich.—Fredrick B. Ranney, vice president and secretary of the Ranney Refrigerator Co. here, died Aug. 13 at the age of 53.

He is survived by his wife, son, daughter, three sisters, and a brother, George Ellis, who is purchasing agent for the firm.

CHICAGO—Hotpoint Co. is sponsoring a new 13-week radio network advertising campaign beginning Aug. 19. A total of 251 NBC and CBS radio stations from coast to coast will carry the spot saturation program on weekdays, and on the weekend Monitor lineup.

The intensive radio campaign will serve to kick off a new advertising, merchandising, and sales promotional slogan—"Look For That Hotpoint Difference."

The new slogan will be used in all trade and consumer advertising, as well as in product literature, direct mail, point of sale material, displays, and similar items.

According to P. L. Crittenden, manager, national advertising for Hotpoint, new special commercials directed to women in the home, will be broadcast during the daytime hours, seven days a week.

Crittenden said that Raymond Scott, formerly musical director for the Hit Parade TV program, composed and orchestrated the new Hotpoint radio commercials. Scott directs his own quintet and the Honey Dreamers, a popular vocal group.

Both 30 second and one minute commercials will plug the new "difference" theme, pointing out and highlighting the various differences of all Hotpoint kitchen, home laundry, and television products, it was explained.

In addition, dealers can use the commercial on their local radio stations, tying into the national program during the 13-week period. A special promotional kit has been designed to help dealers capitalize on their tie-in promotions.

Dunham-Bush Buys Brunner of Canada

WEST HARTFORD, Conn.—Acquisition of Brunner Corp. (Canada) Ltd., by Dunham-Bush, Inc. through the purchase of all outstanding shares from Robert Elder Ltd., Toronto, was announced recently by Cecil Boling, Dunham-Bush president.

Brunner Corp. (Canada) Ltd. will be operated as a wholly-owned subsidiary of Dunham-Bush. The factory will remain at Port Hope, Ont., but the offices will be moved from the present Toronto location to that of Dunham-Bush (Canada) Ltd., 140 Wendell Ave., Toronto.

R. M. Mitchell, president of Dunham-Bush (Canada) Ltd., has been elected president of Brunner Corp. (Canada) Ltd., and Ralph Long, formerly general manager of Brunner Corp. (Canada) Ltd., has been elected

vice president and general manager.

This acquisition makes it possible for the Dunham-Bush organization to offer a complete line of air conditioning, refrigeration, and heating equipment in Canada. Brunner will continue to manufacture a complete line of air compressors.

Gibson Sales--

(Concluded from Page 1, Col. 4)

grams to mass markets was a primary factor in the July surge, according to A. G. Grewe, refrigerator sales manager. During the month two price leaders in 10½ and 13-cu. ft. sizes were directed specifically at this market.

In addition, a low-priced two-door refrigerator-freezer combination was introduced. A high percentage of factory shipments in July were direct dealer car-load shipments, he noted.

Mark of Dependability...



DUNHAM-BUSH

in Air Conditioning, Refrigeration and Heating Products

This mark... **DUNHAM-BUSH** ... signifies proven dependability in this **one source—one responsibility** complete line of air conditioning, refrigeration and heating products.

When you see it... when you sell it... when you stock it... you know it's a **dependable** product!

Solidly reflecting Dunham-Bush product dependability is an ever available Dunham-Bush sales engineer. You can depend on him to help you solve problems... prevent problems. And remember, he represents not one, but **three** great industries... air conditioning, refrigeration and heating.

May we send him your way for a courtesy call?

Dunham-Bush, Inc.

WEST HARTFORD 10 • CONNECTICUT • U. S. A.

MICHIGAN CITY, INDIANA • MARSHALLTOWN, IOWA • RIVERSIDE, CALIFORNIA • UTICA, NEW YORK

heat-x

HEAT-X, INC.
BREWSTER, N.Y.

DUNHAM-BUSH

DUNHAM-BUSH (CANADA), LTD.
TORONTO, CANADA

BRUNNER

THE BRUNNER CO.
GAINESVILLE, GA.

DUNHAM-BUSH

DUNHAM-BUSH, LTD.
LONDON, ENGLAND